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WAF01AS

Vol. 25 No. 6 (Whole Number 305) lune 2001

Next Issue on Sale June 5, 2001





Cover illustration by www.aslmovs.com

Gardner Dozois: Edito

Isaac Asimov: Editorial Director (1977 1992)

Asimov's Science Fiction (USPS \$22-310), Published monthly except for a combined

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October/November double issue by Dell Magazines, a division of Crosstown Publications. One year subscription \$39.97 in the United States and U.S. possessions. In all other countries \$47.97 (GST included in Canada), payable in advance in U.S. funds. Address for subscription and all other correaddress. Address for all editorial matters: Asimov's Science Fiction, 47S Park Avenue South, York, N.Y. 10016. Asimov's Science Fiction is the registered trademark of Dell Magazines, a division of Crosstown Publications, © 2001 by Dell Magazines, a division of Crosstown Publications, 6 Prowitt Street, Norwalk, CT 068SS. All rights reserved, printed in the U.S.A. Protection secured under the addressed, stamped envelope; the publisher assumes no responsibility for unsolicited manuscripts. Penodical postage paid at Norwalk, CT and additional maling offices. Canadian postage paid at CO 80328-4625. In Canada return to Transcontinental Sub Dept, S25 Louis Pasteur, Boucherville. Quebec, J4B 8E7. ISSN 106S-2698. GST #R123293128

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THE CENTER DOES NOT HOLD

ast month I used the occasion of the death of L. Sprague de Camp as a springboard to discuss the 1938-1943 "Golden Age" period of the magazine Astounding Science Fiction, whose editor, John W. Campbell, brought such writers as de Camp, Isaac Asimov, A.E. van Vogt, Theodore Sturgeon, L. Ron Hubbard, Lester del Rev. Clifford D. Simak. and Alfred Bester into prominence with a swiftness that can only be called, well, astounding, And that set me thinking about Campbell and one facet of his extraordinary influence over science fiction that has only infrequently been discussed.

Everyone who knows anything about the history of the development of modern science fiction in the United States is aware of Campbell's impact as an editor. He took over at Astounding in 1937 and ran it until his death in 1971. Throughout that entire period of three and a half decades Campbell, a burly, ponderous, outrageously opinionated man, bestrode the senee fiction world like the colossus he was. I had this to say of him in a 1996 column.

He was a big man, six feet tall and he was the greatest SF writer in the business before I even was born; and then, in 1937, when he was only twenty-seven years old, he gave up free-lance writing to edit the magazine that then was called Astounding Stories, and now has become Analog. It was

while editor of Astounding that this tough-minded, domineering man discovered such new SF writers as Asimov. Heinlein. Sturgeon, van Vogt, and de Camp. The list of his regular writers comprises just about everybody of any importance in the history of science fiction between 1939 and 1952 except Ray Bradbury and Fred Pohl, neither of whom, somehow, ever saw eve to eve with John. For nearly everyone else, though, a sale to Campbell's Astounding was your ticket of admission to the club. You might be able to slip a story past any of the other editors, but in order to sell to Campbell you had to do it right. John was dogmatic the way potatoes are starchy; not only did he know what went into the making of a good SF tale, he understood how the universe worked, and if your story violated the laws of the universe. why, he would tell you so, and you crept out of his office wondering why you had ever bothered learning how to type.

Campbell's editing method inwriters. I experienced it myself when I began my career in the mil-1860s. You came into his small, that the military of the military of the control of the military in the knew you or your work, he gave you his immediate intense attention; within minutes, he was unloading upon you whatever concepts (some of them profound, some intellectually subversive, some wacky, some all at once) that had engaged his powerful mind in the last few days; and after drawing you into a discussion of them that he never failed to dominate, he would send you away, dazed and awed, to write a story based on what you had just heard.

Not that he wanted you to parrot his ideas: that was a sure road to rejection. He wanted your input. He wanted you to provide your own take on his notions, test them, quarrel with them, expand and amplify them. It was his ideas that interested him, mind you, not yours, but he wanted you to collaborate in the development and expounding of them. Sometimes a writer of sufficient intellectual power-Heinlein, say, or Frank Herbert-succeeded in getting Campbell's attention with an idea of his own, and then that idea became part of the common property of Campbell's group of contributors, Campbell tossing it out to other writers ("I've just bought the most wonderful story by Bob Heinlein-I'll tell you what it's about, and then I want to know your thoughts about it") and inviting you to carry it to

the next set of implications. It was a wonderful method when Campbell was in his prime-from 1938 to 1947, say. Isaac Asimov has described in his autobiography how in 1940 Campbell handed him the famous Three Laws of Robotics ("Look, Asimov, in working this out, you have to realize that there are three rules that robots have to follow. . . . "), finding them in Asimov's own stories and codifying them in a way that Isaac had never thought to do. A few months later Campbell showed him a quotation from Ralph Waldo Emerson and said, "What do you think would happen, Asimov, if men were to see the stars for the first time in a thousand years?" Out of that came the classic "Nightfall." John Campbell might not have been GARDNER DOZOIS Editor

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able to write "Nightfall" himself, but Asimov would not have written it either, but for that suggestion.

Many other writers could relate similar anecdotes. From his fertile mind came the seeds of many of our greatest classics, written by others from Campbell's subtle prodding. As the years went on, though, Campbell's hatred of scientific dogma hardened into a strange anti-dogmatism of his own making, and increasingly he embraced quirky and downright bizarre ideas, until toward the end he was advocating perpetual-motion machines and quack cancer cures. This had its effect on the ideas he gave his favorite writers, and as the prodding grew less subtle and the concepts weirder. many of them, reacting in amazement and sometimes anger, rebelled and went off to write for other magazines. By the end of his life Campbell was a lonely and isolated figure: but no one can deny the tremendous achievement of his great years.

One aspect of Campbell's role in our microcosmos that has rarely been discussed is his monthly editorial column. In each of all the hundreds of issues he edited he contributed an essay—a single page at first, sometimes seven or eight toward the end-that dealt with whatever was on his extraordinary mind at the time. In the beginning, the editorials were often simple statements of his thoughts about science fiction. Once his policies were made manifest through the stories he published, he switched instead mainly to scientific themes-his educational background was in physics and engineering-and then, later, to philosophical or sociocultural notions, far out even to Campbell's own dedicated readers.

Campbell's editorials were often startling, frequently infuriating. The one thing they never were was dull. One of the most famous, in the June 1938 issue, discussed the imminent development of spaceships and atomic power. "I think they'll come pretty much together-and both pretty quickly. . . . No one man is going to discover the secret of atomic power. A century from now men will almost certainly say that one of the present great in the field was the discover of the secret of atomic power. We say today that Faraday discovered the principle of the electric dynamo and motor, though he never would recognize the modern turboalternator.

"But you can be fairly certain of this: The discoverer of the secret of atomic power is alive on Earth today. His papers and researches are appearing regularly; his name is known. But the exact handling of the principles he's discovered—not even he knows now.

"We don't know which is his name. But we know him. He's here today."

And, ten months later, in an editorial headed Jackpot!, he wrote of Otto Hahn's discovery of nuclear fission (mistakenly calling him "G. Hahn," and ignoring the collaborative work of Lise Meitner) and said. "Dr. Hahn has discovered that the addition of a neutron to uranium produces a higher element. This one does not pay off in nickels; it doesn't discharge a few minor particles and get comfortable again. It shatters utterly with a violence unimaginable; it discharges two immense atomic particles with a stupendous, furious energy."

This was in 1938, more than a year before the outbreak of Word War II, four years before serious work on atomic weapons began, seven years before Hiroshima. Throughout the war years Campbell ran so many pieces on atomic energy that the FBI finally paid him a visit to find out who was leaking what, he re-

sponded by showing them that he had used nothing but previously published scientific papers.

In 1967, Harry Harrison edited and Doubleday published a book with the dreary title. Collected Editorials from Analog, that reprinted thirty-two of Campbell's most stimulating pieces, dating from 1943 to 1965. At the time I thought it one of the goofiest publishing ideas of the decade-who but Campbell's most impassioned followers would buy a book like that?-but Harrison tells me that it sold quite well, thanks in part to Campbell's energetic promotion of it in his own magazine, And hindsight shows me its great value as a record of Campbell's vigorous mind. A look at the titles of the essays indicates Campbell's range and his willingness to challenge conventional thinking:

"The Lesson of Thalidomide"

"Research is Antisocial"
"The Value of Panic"

"Arithmetic and Empire"
"On the Selective Breeding of Hu-

man Beings"

"We Must Study Psi"

"God Isn't Democratic"
You get the idea—a gadfly, a con-

trarian, a Socratic figure.

And why am I telling you all this

Because there is nothing like Campbell and his editorials in science fiction today. He provided the intellectual center for the field. Everybody read his magazine. Everybody chewed over his editorials. They made some of us nod sagely in agreement, and others froth at the mouth in fury—but the point is that whether you agreed or disagreed with Campbell, you had to come to terms with his ideas. His thinking was the fixed pole against which everyone else reacted, no or con.

The pieces I do for this magazine

are as close as anyone comes to Campbell-style editorials today. But I have no illusions about the extent of their effect. No one publication dominates SF the way Astounding once did. There are many thousands of science fiction readers who have never even heard of Asimov's, let alone read and fight over the ideas I deal with in these pages. And whereas Campbell was a powerful editor, whose ideas had to be taken into account if you had any hope of being published by him, I'm simply one writer, speaking as an independent voice, not in any way representative of the policies of the editor of this magazine.

unis magazine.

So our field no longer has a center.

I think we are worse off for that. But
John Campbells come along only
once in a very long while, and in any
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UNDONE

James Patrick Kelly





he ship screamed. Its screens showed Mada that she was surrounded in threespace. A swarm of Utopian asteroids was closing on her, brain clams and mining Dis living in hollowed-out chunks of carbonaceous chondrite, any one of which could have mustered enough votes to abolish Mada in all ten dimensions.

"I'm going to die," the ship cried, "I'm going to die, I'm going to . . ."

"I'm not." Mada waved the speaker off impatiently and scanned downwhen. She saw that the Utopians had planted an identity mine five minutes into the past that would boil her memory to vapor if she tried to go back in time to undo this trap. Upwhen, then. The future was clear, at least as far as she could see, which wasn't much beyond next week. Of course, that was the direction they wanted her to skip. They'd be happiest making her their great-great-great-grandchildren's problem.

The Utopians fired another spread of panic bolts. The ship tried to absorb them, but its buffers were already overflowing. Mada felt her throat tighten. Suddenly she couldn't remember how to spell *luck*, and she believed that

she could feel her sanity oozing out of her ears.

"So let's skip upwhen," she said.

"You s-sure?" said the ship. "I don't know if . . . how far? "Far enough so that all of these drones will be fossils."

"I can't just . . . I need a number. Mada."

A needle of fear pricked Mada hard enough to make her reflexes kick.
"Skip!" Her panic did not allow for the luxury of numbers. "Skip now!" Her

voice was tight as a fist. "Do it!"

Time shivered as the ship surged into the empty dimensions. In three-space, Mada went all wavy. Eons passed in a nanosecond, then she washed

back into the strong dimensions and solidified.

She merged briefly with the ship to assess damage. "What have you

done?" The gain in entropy was an ache in her bones.
"I-I'm sorry, you said to skip so . . ." The ship was still jittery.

Even though she wanted to kick its sensorium in, she bit down hard on her anger. They had both made enough mistakes that day. "That's all right," she said, "we can always go back. We just have to figure out when we are. Run the star charts."

two-tenths of a spin

The ship took almost three minutes to get its charts to agree with its navigation screens—a bad sign. Reconciling the data showed that it had skipped forward in time about two-tenths of a galactic spin. Almost twenty million years had passed on Mada's home world of Trueborn, time enough for its crust to fold and buckle into new mountain ranges, for the Green Sea to bloom, for the glaciers to march and melt. More than enough time for everything and everyone Mada had ever loved—or hated—to die, turn to dust and blow waw.

aust and blow away.

Whiskers trembling, she checked downwhen. What she saw made her lose her perch and float aimlessly away from the command mod's screens. There had to be something wrong with the ship's air. It settled like dead, wet leaves in her lungs. She ordered the ship to check the mix.

The ship's deck flowed into an enormous plastic hand, warm as blood. It cupped Mada gently in its palm and raised her up so that she could see its screens straight on.

"Nominal, Mada. Everything is as it should be."

That couldn't be right. She could breathe ship-nominal atmosphere. "Check it again," she said

"Mada, I'm sorry," said the ship.

The identity mine had skipped with them and was still dogging her, five infuriating minutes into the past. There was no getting around it, no way to undo their leap into the future. She was trapped two-tenths of a spin up-when. The knowledge was like a sucking hole in her chest, much worse than any wound the Utopian psychological war machine could have inflicted on her.

"What do we do now?" asked the ship.

Mada wondered what she should say to it. Scan for hostiles? Open a pleasure sim? Cook a nice, hot stew? Orders twisted in her mind, bit their tails and swallowed themselves.

She considered—briefly—telling it to open all the air locks to the vacuum. Would it obey this order? She thought it probably would, although she would as soon chew her own tongue off as utter such cowardly words. Had not she and her sibling batch voted to carry the revolution into all ten dimensions? Pledged themselves to fight for the Three Universal Rights, no matter what the cost the Utopian brain clans extracted from them in blood and anguish?

But that had been two-tenths of a spin ago.

bean thoughts

"Where are you going?" said the ship.

Mada floated through the door bubble of the command mod. She wrapped her toes around the perch outside to steady herself.

"Mada, wait! I need a mission, a course, some line of inquiry."

She launched down the companionway.

"I'm a Dependent Intelligence, Mada." Its speaker buzzed with self-right-

eousness. "I have the right to proper and timely guidance."

The ship flowed a veil across her trajectory; as she approached, it went taut. That was DI thinking: the ship was sure that it could just bounce her back into its world. Mada flicked her claws and slashed at it, shredding holes half a meter long.

"And I have the right to be an individual," she said. "Leave me alone."

She caught another perch and pivoted off it toward the greenhouse bl

She caught another perch and pivoted off it toward the greenhouse bliser. She grabbed the perch by the door bubble and paused to flow new alveoli into her lungs to make up for the oxygen-depleted, carbon-dioxide-enriched air mix in the greenhouse. The bubble shivered as she popped through it and she breathed deeply. The smells of life helped ground her whenever operation of the ship overwhelmed her. It was always so needy and there was only one of her.

It would have been different if they had been designed to go out in teams. She would have had her sibling Thiras at her side; together they might have been strong enough to withstand the Utopian's panic . . . no! Mada shook him out of her head. Thiras was gone; they were all gone. There was no

sense in looking for comfort, downwhen or up. All she had was the moment, the tick of the relentless present, filled now with the moist, bittersweet breath of the dirt, the sticky savor of running sap, the bloom of perfume on the flowers. As she drifted through the greenhouse, leaves brushed her skin like caresses. She settled at the potting bench, opened a bin and picked out a single bean seed.

Mada cupped it between her two hands and blew on it, letting her body's warmth coax the seed out of dormancy. She tried to merge her mind with its blissful unconsciousness. Cotyledons stirred and began to absorb nutrients from the endosperm. A bean cared nothing about proclaiming the Three Universal Rights: the right of all independent sentients to remain individual, the right to manipulate their physical structures and the right to access the timelines. Mada slowed her metabolism to the steady and deliberate rhythm of the bean-what Utopian could do that? They held that individuality bred chaos, that function alone must determine form and that undoing the past was sacrilege. Being Utopians, they could hardly destroy Trueborn and its handful of colonies. Instead they had tried to put the Rights under quarantine.

Mada stimulated the sweat glands in the palms of her hands. The moisture wicking across her skin called to the embryonic root in the bean seed. The tip pushed against the sead coat. Mada's sibling batch on Trueborn had pushed hard against the Utopian blockade, to bring the Rights to the rest of the galaxy.

Only a handful had made it to open space. The brain clans had hunted them down and brought most of them back in disgrace to Trueborn. But not Mada, No. not wilv Mada, Mada the fearless, Mada whose heart now beat but once a minute.

The bean embryo swelled and its root cracked the seed coat. It curled into her hand, branching and rebranching like the timelines. The roots tickled her.

Mada manipulated the chemistry of her sweat by forcing her sweat ducts to reabsorb most of the sodium and chlorine. She parted her hands slightly and raised them up to the grow lights. The cotyledons emerged and chloroplasts oriented themselves to the light. Mada was thinking only bean thoughts as her cupped hands filled with roots and the first true leaves unfolded. More leaves budded from the nodes of her stem, her petioles arched and twisted to the light, the light. It was only the light-violet-blue and orange-red-that mattered, the incredible shower of photons that excited her chlorophyll, passing electrons down carrier molecules to form adenosine diphosphate and nicotinamide adenine dinucleo. . . .

"Mada," said the ship. "The order to leave you alone is now superseded by

primary programming.

"What?" The word caught in her throat like a bone.

"You entered the greenhouse forty days ago."

Without quite realizing what she was doing, Mada clenched her hands, crushing the young plant.

"I am directed to keep you from harm, Mada," said the ship. "It's time to

She glanced down at the dead thing in her hands, "Yes, all right," She dropped it onto the potting bench. "Tve got something to clean up first but I'll be there in a minute." She wiped the corner of her eye. "Meanwhile, calculate a course for home."

Not until the ship scanned the quarantine zone at the edge of the Trueborn system did Mads begin to worry. In her time the zone had swarmed with the battle asteroids of the brain clans. Now the Utopians were gone. Of course, that was to be expected after all this time. But as the ship re-entered the home system, dumping excess velocity into the empty dimensions, Mada felt a chill that had nothing to do with the temperature in the command mod.

Trueborn orbited a spectral type G3V star, which had been known to the discoverers as HR3538. Scans showed that the Green Sea had become a climax forest of deciduous hardwood. There were indeed new mountains—knife edges slicing through evergreen sheets—that had upthrust some eighty kilometers off the Fire Coast, leaving Port Henoch landlocked. A rain forest choked the plain where the city of Blair's Landing had once

sprawled.

The ship scanned life in abundance. The seas teemed and flocks of Trueborn's flyers darkened the skies like storm clouds: kippies and bluewings and warblers and migrating stilts. Animals had retaken all three continents, lowland and upland, marsh and tundra. Mada could see the dust kicked up by the herd's of herbivorous aram from low orbit. The forest echoed with the clatter of shindies and the shriek of blowhards. Big hunters like kar and divil padded across the plains. There were new species as well, mostly invertebrates but also a number of lizards and something like a great, mossy rat that built mounds five meters tall.

None of the introduced species had survived: dogs or turkeys or llamas. The ship could find no cities, towns, buildings—not even ruins. There were neither tubeways nor roads, only the occasional animal track. The ship looked across the entire electromagnetic spectrum and saw nothing but the

natural background.

There was nobody home on Trueborn, And as far as they could tell, there

never had been.
"Speculate." said Mada.

"I can't." said the ship. "There isn't enough data."

"There's your data." Mada could hear the anger in her voice. "Trueborn, as it would have been had we never even existed."

"Two-tenths of a spin is a long time, Mada."

She shook her head. They ripped out the foundations, even picked up the dumps. There's nothing, nothing of us left. Mada was gripping the command perch so hard that the knuckles of her toes were white. "Hypothesis," she said, "the Utopians got tired of our troublemaking and wiped us out. Speculate."

"Possible, but that's contrary to their core beliefs." Most DIs had terrible imaginations. They couldn't tell jokes, but then they couldn't commit crimes, either

"Hypothesis: they deported the entire population, scattered us to prison colonies. Speculate."

"Possible, but a logistical nightmare. The Utopians prize the elegant solution."

She swiped the image of her home planet off the screen, as if to erase its unnerving impossibility. "Hypothesis: there are no Utopians anymore because the revolution succeeded. Speculate."

"Possible, but then where did everyone go? And why did they return the

planet to its pristine state?"

She snorted in disgust. "What if," she tapped a finger to her forehead, "maybe we don't exist. What if we've skipped to another time line? One in which the discovery of Trueborn never happened? Maybe there has been no Utopian Empire in this timeline, no Great Expansion, no Space Age, maybe no human civilization at all."

"One does not just skip to another timeline at random." The ship sounded huffy at the suggestion. "I've monitored all our dimensional reinsertions quite carefully, and I can assure you that all these events occurred in the timeline we currently occupy."

"You're saying there's no chance?"

"If you want to write a story, why bother asking my opinion?" Mada's laugh was brittle. "All right then. We need more data." For the first time since she had been stranded upwhen, she felt a tickle stir the dead weight she was carrying inside her. "Let's start with the nearest Utopian system."

chasing shadows

The HR683 system was abandoned and all signs of human habitation had been obliterated. Mada could not be certain that everything had been restored to its pre-Expansion state because the ship's database on Utopian resources was spotty. HR4523 was similarly deserted. HR509, also known as Tau Ceti, was only 11.9 light years from earth and had been the first outpost of the Great Expansion.

Its planetary system was also devoid of intelligent life and human arti-

facts-with one striking exception.

Nuevo LA was spread along the shores of the Sterling Sea like a half-eaten picnic lunch. Something had bitten the roofs off its buildings and chewed its walls. Metal skeletons rotted on its docks, transports were melting into brown and gold stains. Once-proud boulevards crumbled in the orange light: the only traffic was windblown litter chasing shadows.

Mada was happy to survey the ruin from low orbit. A closer inspection

would have spooked her. "Was it war?"

There may have been a war," said the ship, "but that's not what caused this. I think it's deliberate deconstruction." In extreme magnification, the screen showed a concrete wall pockmarked with tiny holes, from which dust puffed intermittently. "The composition of that dust is limestone, sand, and aluminum silicate. The buildings are crawling with nanobots and they're eating the concrete."

"How long has this been going on?"

"At a guess, a hundred years, but that could be off by an order of magnitude."

"Who did this?" said Mada. "Why? Speculate."

"If this is the outcome of a war, then it would seem that the victors wanted to obliterate all traces of the vanguished. But it doesn't seem to have been fought over resources. I suppose we could imagine some deep ideological antagonism between the two sides that led to this, but such an extreme

of cultural psychopathology seems unlikely."
"I hope you're right." She shivered. "So they did it themselves, then?

Maybe they were done with this place and wanted to leave it as they found it?"

"Possible," said the ship.

Mada decided that she was done with Nuevo LA, too. She would have been perversely comforted to have found her enemies in power somewhere. It would have given her an easy way to calculate her duty. However, Mada was quite certain that what this mystery meant was that twenty thousand millennia had conquered both the revolution and the Utopians and that she and her sibling batch had been designed in vain.

Still, she had nothing better to do with eternity than to try to find out

what had become of her species.

a never-ending vacation

The Atlantic Ocean was now larger than the Pacific. The Mediterranean Sea had been squeezed out of existence by the collision of Africa, Europe and Asia. North America floated free of South America and was nudging

Siberia. Australia was drifting toward the equator.

The population of earth was about what it had been in the fifteenth century CE, according to the ship, Half a billion people lived on the home world and, as far as Mada could see, none of them had anything important to do. The means of production and distribution, of energy-generation and waste disposal were in the control of Dependent Intelligences like the ship. Despite repeated scans, the ship could detect no sign that any independent sentience was overseeing the system.

There were but a handful of cities, none larger than a quarter of a million inhabitants. All were scrubbed clean and kept scrupulously ordered by the Dis; they reminded Mada of databases populated with people instead of information. The majority of the population spent their bucolic lives in pretty hamlets and quaint towns overlooking lakes or oceans or mountains.

Humanity had booked a never-ending vacation.

"The brain clans could be controlling the DIs," said Mada. "That would ake sense."

"Doubtful," said the ship. "Independent sentients create a signature disturbance in the sixth dimension."

"Could there be some secret dictator among the humans, a hidden oligarchy?"

"I see no evidence that anyone is in charge. Do you?"

She shook her head. "Did they choose to live in a museum," she said, "or were they condemned to it? It's obvious there's no First Right here; these people have only the *illusion* of individuality. And no Second Right either. Those bodies are as plain as uniforms—they're still slaves to their biology."

Those bodies are as plain as uniforms—they're still slaves to their biology,"
"There's no disease," said the ship. "They seem to be functionally immor-

tal."
"That's not saying very much, is it?" Mada sniffed. "Maybe this is some scheme to start human civilization over again. Or maybe they're like seeds, stored here until someone comes along to plant them." She waved all the

screens off. "I want to go down for a closer look. What do I need to pass?"
"Clothes, for one thing." The ship displayed a selection of current styles on
its screen. They were extravagantly varied, from ballooning pastel tents to
skin-tight sheaths of luminescent metal, to feathered camouflage to jump-

suits made of what looked like dried mud. "Fashion design is one of their principal pasttimes," said the ship. "In addition, you'll probably want geni-

talia and the usual secondary sexual characteristics."

It took her the better part of a day to flow ovaries, fallopian tubes, a uterus, cervix, and vulva and to rearrange her vagina. All these unnecessary organs made her feel bloated. She saw breasts as a waste of tissue; she made hers as small as the ship thought acceptable. She argued with it about the several substantial patches of hair it claimed she needed. Clearly, grooming them would require constant attention. She didn't mind taming her claws into fingernails but she hated giving up her whiskers. Without them, the air was practically invisible. At first her new vulva tickled when she walked, but she got used to it.

The ship entered earth's atmosphere at night and landed in what had once been Saskatchewan, Canada. It dumped most of its mass into the empty dimensions and flowed itself into baggy black pants, a moss-colored boat neck top and a pair of brown, gripall loafers. It was able to conceal its com-

plete sensorium in a canvas belt.

It was 9:14 in the morning on June 23, 19,834,004 CE when Mada strolled into the village of Harmonious Struggle.

the devil's apple

Harmonious Struggle consisted of five clothing shops, six restaurants, three jewelers, eight art galleries, a musical instrument maker, a crafts workshop, a weaver, a potter, a woodworking shop, two candle stores, four theaters with capacities ranging from twenty to three hundred and an enormous sporting goods store attached to a miniature domed stadium. There looked to be apartments over most of these establishments; many had views of nearby Rabbit Lake.

Three of the restaurants—Hassam's Palace of Plenty, The Devil's Apple, and Laurel's—were practically jostling each other for position on Sonnet Street, which ran down to the lake. Lounging just outside of each were waiters eveing handheld screens. They sprang up as one when Mada happened

around the corner.

"Good day, Madame. Have you eaten?"

"Well met, fair stranger. Come break bread with us."

"All natural foods, friend! Lightly cooked, humbly served."

Mada veered into the middle of the street to study the situation as the waiters called to her. ~So I can choose whichever I want?~ she subvocalized to the ship.

~In an attention-based economy,~ subbed the ship in reply, ~all they ex-

pect from you is an audience.~

Just beyond Hassam's, the skinny waiter from The Devil's Apple had a wry, crooked smile. Black hair fell to the padded shoulders of his shirt. He was wearing boots to the knee and loose rust-colored shorts, but it was the little red cape that decided her.

As she walked past her, the waitress from Hassam's was practically shouting, "Madame, please, their batter is dull!" She waved her handheld at

Mada. "Read the reviews. Who puts shrimp in muffins?"

The waiter at the Devil's Apple was named Owen. He showed her to one of three tables in the tiny restaurant. At his suggestion, Mada ordered the

poached peaches with white cheese mousse, an asparagus breakfast torte, baked orange walnut French toast and coddled eggs. Owen served the peaches, but it was the chef and owner, Edris, who emerged from the kitchen to clear the plate.

"The mousse, Madame, you liked it?" she asked, beaming. "It was good," said Mada.

Her smile shrank a size and a half. "Enough lemon rind, would you say that?"

"Yes. It was very nice."

Mada's reply seemed to dismay Edris even more. When she came out to clear the next course, she blanched at the corner of breakfast torte that Mada had left uneaten.

"I knew this." She snatched the plate away. "The pastry wasn't fluffy enough." She rolled the offending scrap between thumb and forefinger.

Mada raised her hands in protest. "No, no, it was delicious." She could see Owen shrinking into the far corner of the room.

"Maybe too much colby, not enough gruvere?" Edris snarled, "But you have no comment?"

"I wouldn't change a thing. It was perfect."

"Madame is kind," she said, her lips barely moving, and retreated.

A moment later Owen set the steaming plate of French toast before Mada.

"Excuse me." She tugged at his sleeve. "Something's wrong?" He edged away from her. "You must speak to Edris."

"Everything is fine. I was just wondering if you could tell me how to get to the local library." Edris burst out of the kitchen. "What are you doing, beanheaded boy? You are distracting my patron with absurd chitterchat. Get out, get out of my

restaurant now."

"No. really, he . . . " But Owen was already out the door and up the street, taking Mada's appetite with him.

~You're doing something wrong,~ the ship subbed.

Mada lowered her head. ~I know that!~

Mada pushed the sliver of French toast around the pool of maple syrup for several minutes but could not eat it. "Excuse me," she called, standing up abruptly, "Edris?"

Edris shouldered through the kitchen door, carrying a tray with a silver

egg cup. She froze when she saw how it was with the French toast and her only patron. "This was one of the most delicious meals I have ever eaten." Mada

backed toward the door. She wanted nothing to do with eggs, coddled or otherwise.

Edris set the tray in front of Mada's empty chair. "Madame, the art of the kitchen requires the tongue of the patron," she said icily.

She fumbled for the latch. "Everything was very, very wonderful."

no comment

Mada slunk down Lyric Alley, which ran behind the stadium, trying to understand how exactly she had offended. In this attention-based economy. paying attention was obviously not enough. There had to be some other cultural protocol she and the ship were missing. What she probably ought to do was go back and explore the clothes shops, maybe pick up a pot or some candles and see what additional information she could blunder into. But making a fool of herself had never much appealed to Mada as a learning strategy. She wanted the map, a native guide-some edge, preferably secret.

~Scanning,~ subbed the ship. ~Somebody is following you. He just ducked behind the privet hedge twelve-point-three meters to the right. It's the waiter, Owen.~

"Owen," called Mada, "is that you? I'm sorry I got you in trouble, You're an excellent waiter." "I'm not really a waiter." Owen peeked over the top of the hedge. "I'm a

She gave him her best smile. "You said you'd take me to the library." For some reason, the smile stayed on her face "Can we do that now?"

"First listen to some of my poetry." "No," she said firmly. "Owen, I don't think you've been paying attention. I

said I would like to go to the library."

"All right then, but I'm not going to have sex with you."

Mada was taken aback. "Really? Why is that?"

"I'm not attracted to women with small breasts."

For the first time in her life, Mada felt the stab of outraged hormones. "Come out here and talk to me."

There was no immediate break in the hedge, so Owen had to squiggle through. "There's something about me that you don't like," he said as he struggled with the branches.

"Is there?" She considered. "I like your cape."

"That you don't like." He escaped the hedge's grasp and brushed leaves from his shorts.

"I guess I don't like your narrow-mindedness. It's not an attractive quali-

There was a gleam in Owen's eve as he went up on his tiptoes and began to declaim:

"That spring you left I thought I might expire And lose the love you left for me to keep.

To hold you once again is my desire

Before I give myself to death's long sleep."

He illustrated his poetry with large, flailing gestures. At "death's long sleep" he brought his hands together as if to pray, laid the side of his head against them and closed his eyes. He held that pose in silence for an agonizingly long time.

"It's nice," Mada said at last. "I like the way it rhymes."

He sighed and went flat-footed. His arms drooped and he fixed her with an accusing stare, "You're not from here."

"No," she said. ~Where am I from?~ she subbed. ~Someplace he'll have to look up.~

~Marble Bar. It's in Australia~

"I'm from Marble Bar."

"No. I mean you're not one of us. You don't comment." At that moment, Mada understood. ~I want to skip downwhen four min-

utes. I need to undo this .~

~ this undo to need I .minutes four downwhen skip to want I- .understood Mada, moment that At ".comment don't You .us of one not you're mean I ,No" ".Bar Marble from I'm" ~Australia in It's .Bar Marble~ ~up look to have he'll Someplace~ .subbed she ~?from I am Where~ .said she ",No" ".here from not You're" .stare accusing an with her fixed he and drooped arms His .flatfooted went and sighed He ".rhymes it way the like I." .last at said Mada ".nice It's" .time long agonizingly an for silence in pose that held He .eyes his closed and them against head his of side the laid ,pray to if as together hands his brought he "sleep long death's" At .gestures flailing large with poetry his illustrated He ".sleep long death's to myself give I Before desire my is again once you hold To keep to me for left you love the lose And expire might I thought I left you spring That" :declaim to began and tiptoes his on up went he as eye Owen's in gleam a was There ".poet a in quality attractive an not It's .narrow-mindedness your like don't I guess I" .shorts his from leaves brushed and grasp hedge's the escaped He ".like don't you That" "cape your like I" .considered She "?there Is." .branches the with struggled he as said he ",like don't you that me about something There's" through squiggle to had Owen so hedge the in break immediate no was There ".me to talk and here out Come" .hormones wronged of stab the felt Mada life her in time first the For ".breasts small with women to attracted not I'm" "?that is Why ?Really" aback taken was Mada ".you with sex have to going not I'm but ,then right All" ".library the to go to like would I said I attention paying been you've think don't I .Owen" .firmly said she ".No" ".poetry my of some to listen First'

As the ship surged through the empty dimensions, threespace became as liquid as a dream. Leaves smeared and buildings ran together. Owen's face swirled.

"They want criticism," said Mada. "They like to think of themselves as artists but they're insecure about what they're complished. They want their audience to engage with what they're doing, help them make it better—the comments they both seem to expect."

"I see it now," said the ship.
"But is one person in a backwater worth an undo? Let's just start over somewhere else."

"No, I have an idea." She began flowing more fat cells to her breasts. For the first time since she had skipped upwhen, Mada had a glimpse of what her duty might now be. "I'm going to need a big special effect on short notice. Be ready to reclaim mass so you can resubstantiate the hull at my command."

"First listen to some of my poetry."

"Go ahead." Mada folded her arms across her chest. "Say it then."

Owen stood on tiptoes to declaim:
"That spring you left I thought I might expire

And lose the love you left for me to keep.

And lose the love you left for me to l To hold you once again is my desire

Before I give myself to death's long sleep."

He illustrated his poetry with large, flailing gestures. At "death's long sleep" he brought his hands together as if to pray, moved them to the side of his head, rested against them and closed his eyes. He had held the pose for just a beat before Mada interrupted him.

"Owen," she said. "You look ridiculous."

He jerked as if he had been hit in the head by a shovel. She pointed at the ground before her. "You'll want to take these comments

sitting down."

He hesitated, then settled at her feet.

"You hold your meter well, but that's purely a mechanical skill." She circled behind him. "A smart oven could do as much. Stop fidgeting!"

She hadn't noticed the ant hills near the spot she had chosen for Owen. The first scouts were beginning to explore him. That suited her plan exactly, "Your real problem," she continued, "is that you know nothing about death and probably very little about desire."

"I know about death." Owen drew his feet close to his body and grasped his knees, "Everyone does, Flowers die, squirrels die,"

"Has anyone you've ever known died?"

He frowned. "I didn't know her personally, but there was the woman who fell off that cliff in Merrymeeting.

"Owen, did you have a mother?"

"Don't make fun of me. Everyone has a mother."

Mada didn't think it was time to tell him that she didn't: that she and her sibling batch of a thousand revolutionaries had been autoflowed. "Hold out your hand." Mada scooped up an ant. "That's your mother." She crunched it and dropped it onto Owen's palm.

Owen looked down at the dead ant and up again at Mada. His eyes filled.

"I think I love you," he said. "What's your name?"

"Mada," She leaned over to straighten his cape, "But loving me would be a very had idea "

all that's left

Mada was surprised to find a few actual books in the library, printed on real plastic, A primitive DI had catalogued the rest of the collection, billions of gigabytes of print, graphics, audio, video, and VR files. None of it told Mada what she wanted to know. The library had sims of Egypt's New Kingdom, Islam's Abbasid dynasty, and the International Moonbase-but then came an astonishing void, Mada's searches on Trueborn, the Utopians, Tau Ceti, intelligence engineering and dimensional extensibility theory turned up no results. It was only in the very recent past that history resumed. The DI could reproduce the plans that the workbots had left when they built the library twenty-two years ago, and the menu The Devil's Apple had offered the previous summer, and the complete won-lost record of the Black Minks. the local scatterball club, which had gone 533-905 over the last century. It knew that the name of the woman who died in Merrymeeting was Agnes and that two years after her death, a replacement baby had been born to Chandra and Yuri. They named him Herrick.

Mada waved the screen blank and stretched. She could see Owen draped artfully over a nearby divan, as if posing for a portrait. He was engrossed by his handheld. She noticed that his lips moved as he read. She crossed the reading room and squeezed onto it next to him, nestling into the crook in his

legs. "What's that?" she asked.

He turned the handheld toward her. "Nadeem Jerad's Burning the Snow. Would you like to hear one of his poems?"

"Maybe later." She leaned into him, "I was just reading about Moonbase." "Yes, ancient history. It's sort of interesting, don't you think? The Greeks and the Renaissance and all that."

"But then I can't find any record of what came after."

"Because of the nightmares," He nodded, "Terrible things happened, so we forgot them." "What terrible things?"

He tapped the side of his head and grinned.

"Of course," she said, "nothing terrible happens anymore."

"No. Everyone's happy now." Owen reached out and pushed a strand of her hair off her forehead. "You have beautiful hair."

Mada couldn't even remember what color it was. "But if something terrible did happen, then you'd want to forget it." "Obviously"

"The woman who died, Agnes, No doubt her friends were very sad,"

"No doubt." Now he was playing with her hair.

~Good question,~ subbed the ship, ~They must have some mechanism to wine their memories ~ "Is something wrong?" Owen's face was the size of the moon: Mada was

afraid of what he might tell her next. "Agnes probably had a mother," she said.

"A mom and a dad."

"It must have been terrible for them."

He shrugged. "Yes, I'm sure they forgot her."

Mada wanted to slap his hand away from her head, "But how could they?"

He gave her a puzzled look, "Where are you from, anyway?"

"Trueborn," she said without hesitation. "It's a long, long way from here." "Don't you have libraries there?" He gestured at the screens that surrounded them. "This is where we keep what we don't want to remember."

~Skip!~ Mada could harely sub; if what she suspected were true ... ~Skip downwhen two minutes.~

~.minutes two downwhen Skip ~ . . . true were suspected she what if ; sub barely could Mada ~!Skip~ ".remember to want don't we what keep we "Skip-" remember to want don't we wnat keep we where is This' them surrounded that screen the at gestured He "?there libraries have you Don't" "here from way long long a It's" hesitation without said she "Trueborn" "anyway, from you are Where" look puzzled a her gave He "?they could how But" head her from away hand his slap to wanted Mada ".her forgot they sure I'm, Yes" shrugged He "them for terrible been have must It" ".dad a and mom A" "mother a had probably Agnes" next her tell might he what of afraid was Mada moon the of size of the was face Owen's "?wrong something Is" -.memories their wine to mechanism some have must They" ship the subbed - question Good-. hair her with playing was he Now "doubt No" "sad very were friends her doubt no "Agnes , died who woman The" "Obviously" couldn't even Mada

She wrapped her arms around herself to keep the empty dimensions from reaching for the emptiness inside her. Was something wrong?

Of course there was, but she didn't expect to say it out loud. "I've lost everything and all that's left is this "

Owen shimmered next to her like the surface of Rabbit Lake. "Mada, what?" said the ship.

"Forget it," she said. She thought she could hear something cracking when she laughed.

Mada couldn't even remember what color her hair was, "But if something terrible did happen, then you'd want to forget it."

"Obviously."

Undone

"Something terrible happened to me."

"I'm sorry." Owen squeezed her shoulder. "Do you want me to show you how to use the headbands?" He pointed at a rack of metal-mesh strips. ~Scanning,~ subbed the ship. "Microcurrent taps capable of modulating

post-synaptic outputs. I thought they were some kind of virtual reality I/O. "No." Mada twisted away from him and shot off the divan. She was out-

raged that these people would deliberately burn memories. How many stubbed toes and unhappy love affairs had Owen forgotten? If she could have, she would have skipped the entire village of Harmonius Struggle downwhen into the identity mine. When he rose up after her, she grabbed his hand, "I have to get out of here right now,"

She dragged him out of the library into the innocent light of the sun.

"Wait a minute," he said. She continued to tow him up Ode Street and out of town. "Wait!" He planted his feet, tugged at her and she spun back to him.

"Why are you so upset?"

"I'm not upset." Mada's blood was hammering in her temples and she could feel the prickle of sweat under her arms. -Now I need you, - she subbed. "All right then. It's time you knew." She took a deep breath. "We were just talking about ancient history, Owen. Do you remember back then that the gods used to intervene in the affairs of humanity?"

Owen goggled at her as if she were growing beans out of her ears.

"I am a goddess, Owen, and I have come for you. I am calling you to your destiny. I intend to inspire you to great poetry."

His mouth opened and then closed again.

"My worshippers call me by many names." She raised a hand to the sky. -Help?-

~Trv Athene? Here's a databurst.~

"To the Greeks, I was Athene," Mada continued, "the goddess of cities, of technology and the arts, of wisdom and of war." She stretched a hand toward Owen's astonished face, forefinger aimed between his eyes. "Unlike you, I had no mother. I sprang full-grown from the forehead of my maker. I am Athene, the virgin goddess."

"How stupid do you think I am?" He shivered and glanced away from her fierce gaze. "I used to live in Maple City, Mada. I'm not some simple-minded country lum, You don't seriously expect me to believe this goddess nonsense?"

She slumped, confused. Of course she had expected him to believe her. "I meant no disrespect, Owen It's just that the truth is ... "This wasn't as easy as she had thought. "What I expect is that you believe in your own potential, Owen. What I expect is that you are brave enough to leave this place and come with me. To the stars, Owen, to the stars to start a new world." She crossed her arms in front of her chest, grasped the hem of her moss-colored top, pulled it over her head and tossed it behind her. Before it hit the ground the ship augmented it with enough reclaimed mass from the empty dimensions to resubstantiate the command and living mods.

Mada was quite pleased with the way Owen tried—and failed—not to stare at her breasts. She kicked the gripall loafers off and the deck rose up beneath them. She stepped out of the baggy, black pants; when she tossed them at Owen, he flinched. Seconds later, they were eveing each other in the

metallic light of the ship's main companionway.

"Well?" said Mada.

duty

Mada had difficulty accepting Trueborn as it now was. She could see the ghosts of great cities, hear the murmur of dead friends. She decided to live in the forest that had once been the Green Sea, where there were no landmarks to remind her of what she had lost. She ordered the ship to begin constructing an infrastructure similar to that they had found on earth, only capable of supporting a technologically advanced population. Borrowing orphan mass from the empty dimensions, it was soon consumed with this monumental task. She missed its company; only rarely did she use the link it had left her—a silver ring with a direct connection to its sensorium.

The ship's first effort was the farm that Owen called Athens. It consisted

of their house, a flow works, a gravel pit and a barn. Dirt roads led to various mines and domed fields that the ship's bots tended. Mada had it build a separate library, a little way into the woods, where, she declared, information was to be acquired only, never destroyed. Owen spent many evenings there. He said he was trying to make himself worthy of her.

He had been deeply flattered when she told him that, as part of his training as a poet, he was to name the birds and beasts and flowers and trees of

Trueborn. "But they must already have names," he said, as they walked back to the

house from the newly tilled soya field. "The people who named them are gone," she said. "The names went with

them.' "Your people." He waited for her to speak. The wind sighed through the

forest. "What happened to them?"

"I don't know." At that moment, she regretted ever bringing him to Truehorn

He sighed. "It must be hard."

"You left your people," she said. She spoke to wound him, since he was

wounding her with these rude questions.

"For you, Mada." He let go of her. "I know you didn't leave them for me." He picked up a pebble and held it in front of his face, "You are now Madastone," he told it, "and whatever you hit . . ." He threw it into the woods and it thwocked off a tree. "... is Mada-tree. We will plant fields of Mada-seed and press Mada-juice from the sweet Mada-fruit and dance for the rest of our days down Mada Street." He laughed and put his arm around her waist and swung her around in circles, kicking up dust from the road. She was so surprised that she laughed too.

Mada and Owen slept in separate bedrooms, so she was not exactly sure how she knew that he wanted to have sex with her. He had never spoken of it, other than on that first day when he had specifically said that he did not want her. Maybe it was the way he continually brushed up against her for no apparent reason. This could hardly be chance, considering that they were the only two people on Trueborn. For herself, Mada welcomed his hesitancy. Although she had been emotionally intimate with her batch siblings, none

of them had ever inserted themselves into her body cavities.

But, for better or worse, she had chosen this man for this course of action. Even if the galaxy had forgotten Trueborn two-tenths of a spin ago, the revolution still called Mada to her duty.

"What's it like to kiss?" she asked that night, as they were finishing supper. Owen laid his fork across a plate of cauliflower curry. "You've never kissed

anyone before?"

"That's why I ask." Owen leaned across the table and brushed his lips across hers. The brief contact made her cheeks flush, as if she had just jogged in from the gravel pit. "Like that," he said. "Only better."

"Do you still think my breasts are too small?"

"I never said that." Owen's face turned red.

"It was a comment you made-or at least thought about making."

"A comment?" The word comment seemed to stick in his throat; it made him cough. "Just because you make comment on some aspect doesn't mean you reject the work as a whole." Mada glanced down the neck of her shift. She hadn't really increased her

breast mass all that much, maybe ten or twelve grams, but now vasocongestion had begun to swell them even more. She could also feel blood flowing to her reproductive organs. It was a pleasurable weight that made her

feel light as pollen. "Yes, but do you think they're too small?"

Owen got up from the table and came around behind her chair. He put his hands on her shoulders and she leaned her head back against him. There was something between her cheek and his stomach. She heard him say, "Yours are the most perfect breasts on this entire planet," as if from a great distance and then realized that the something must be his penis.

After that, neither of them made much comment.

nine hours

Mada stared at the ceiling her eyes wide but unseeing. Her concentration had turned inward. After she had rolled off him. Owen had flung his left arm across her belly and drawn her hip toward his and given her the night's last kiss. Now the muscles of his arm were slack, and she could hear his seashore breath as she released her ovum into the cloud of his sperm squiggling up her fallopian tubes. The most vigorous of the swimmers butted its head through the ovum's membrane and dissolved, releasing its genetic material. Mada immediately started raveling the strands of DNA before the fertilized egg could divide for the first time. Without the necessary diversity. they would never revive the revolution. Satisfied with her intervention, she flowed the blastocyst down her fallopian tubes where it locked onto the wall of her uterus. She prodded it and the ball of cells became a comma with a big head and a thin tail. An array of cells specialized and folded into a tube that ran the length of the embryo, weaving into nerve fibers. Dark pigment swept across two cups in the blocky head and then bulged into eyes. A mouth slowly opened; in it was a one-chambered, beating heart. The front end of the neural tube blossomed into the vesicles that would become the brain. Four buds swelled, two near the head, two at the tail. The uppermost pair sprouted into paddles, pierced by rays of cells that Mada immediately began to ossify into fingerbone. The lower buds stretched into delicate legs. At midnight, the embryo was as big as a her fingernail; it began to move and so became a fetus. The eyes opened for a few minutes, but then the eyelids fused. Mada and Owen were going to have a son; his penis was now a nub of flesh. Bubbles of tissue blew inward from the head and became his ears. Mada listened to him listen to her heartbeat. He lost his tail and his intestines slithered down the umbilical cord into his abdomen. As his fingerprints looped and whorled, he stuck his thumb into his mouth. Mada was having trouble breathing because the fetus was floating so high in her uterus. She eased herself into a sitting position and Owen grumbled in his sleep. Suddenly the curry in the cauliflower was giving her heartburn. Then the muscles of her uterus tightened and pain sheeted across her swollen belly.

Drink this.* The ship flowed a tumbler of nutrient nano onto the bedside table. **The fetus gains mass rapidly from now on. The stuff tasted like

rusty nails. ~You're doing fine.~

rusty nails. -You're doing ine.When the fetus turned upside down, it felt like he was trying out a gymnastic routine. But then he snuggled headfirst into her pelvis, and calmed
down, probably because there wasn't enough room left inside her for him to
make large. failing gestures like his father. Now she could feel electrical

buzzes down her legs and inside her vagina as the baby bumped her nerves. He was big now, and growing by almost a kilogram an hour, laying down new muscle and brown fat. Mada was tired of it all. She dozed. At six-thirtyseven her water broke, drenching the bed. "Hmm." Owen rolled away from the warm, fragrant spill of amniotic fluid.

"What did you say?" The contractions started; she put her hand on his chest and pressed

down. "Help," she whimpered. "Wha...?" Owen propped himself up on his elbows. "Hey, I'm wet. How did I get...?"

"O-Owen!" She could feel the baby's head stretching her vagina in a way mere flesh could not possibly stretch. "Mada! What's wrong?" Suddenly his face was very close to hers, "Mada,

what's happening?"

But then the baby was slipping out of her, and it was sooo much better than the only sex she had ever had. She caught her breath and said, "I have begotten a son."

She reached between her legs and pulled the baby to her breasts. They

were huge now, and very sore.

"We will call him Owen," she said.

begot

And Mada begot Enos and Felicia and Malaleel and Ralph and Jared and Elisa and Tharsis and Masahiko and Thema and Seema and Casper and Hevila and Djanka and Jennifer and Jojo and Regma and Elvis and Irina and Dean and Marget and Karoly and Sabatha and Ashley and Siobhan and Mei-Fung and Neil and Gupta and Hans and Sade and Moon and Randy and Genevieve and Bob and Nazia and Eiichi and Justine and Ozma and Khaled and Candy and Pavel and Isaac and Sandor and Veronica and Gao and Pat and Marcus and Zsa Zsa and Li and Rebecca.

Seven years after her return to Trueborn, Mada rested.

ever after

Mada was convinced that she was not a particularly good mother, but then she had been designed for courage and quick-thinking, not nurturing and patience. It wasn't the crying or the dirty diapers or the spitting-up, it was the utter uselessness of the babies that the revolutionary in her could not abide. And her maternal instincts were often skewed. She would offer her children the wrong toy or cook the wrong dish, fall silent when they wanted her to play, prod them to talk when they needed to withdraw. Mada and the ship had calculated that fifty of her genetically manipulated offspring would provide the necessary diversity to repopulate Trueborn. After Rebecca was born. Mada was more than happy to stop having children.

Although the children seemed to love her despite her awkwardness, Mada wasn't sure she loved them back. She constantly teased at her feelings, peeling away what she considered pretense and sentimentality. She worried that the capacity to love might not have been part of her emotional design. Or perhaps begetting fifty children in seven years had left her numb.

Undone

Owen seemed to enjoy being a parent. He was the one whom the children called for when they wanted to play. They came to Mada for answers and decisions. Mada liked to watch them snuggle next to him when he spun his fantastic stories. Their father picked them up when they stumbled, and let them climb on his shoulders so they could see just what he saw. They told

him secrets they would never tell her.

The children adored the ship, which substantiated a bot companion for each of them, in part for their protection. All had inherited their father's allbut-invulnerable immune system; their chromosomes replicated well beyond the Hayflick limit with integrity and fidelity. But they lacked their mother's ability to flow tissue and were therefore at peril of drowning or breaking their necks. The bots also provided the intense individualized attention that their busy parents could not. Each child was convinced that his or her bot companion had a unique personality. Even the seven-year-olds were too young to realize that the bots were reflecting their ideal personality back at them. The bots were in general as intelligent as the ship, although it had programmed into their DIs a touch of naïveté and a tendency to literalness that allowed the children to play tricks on them. Pranking a brother or sister's bot was a particularly delicious sport.

Athens had begun to sprawl after seven years. The library had tripled in size and grown a wing of classrooms and workshops. A new gym overlooked three playing fields. Owen had asked the ship to build a little theater where the children could put on shows for each other. The original house became a ring of houses, connected by corridors and facing a central courtyard. Each night Mada and Owen moved to their bedroom in a different house. Owen thought it important that the children see them sleeping in the same bed;

Mada went along.

After she had begotten Rebecca, Mada needed something to do that didn't involve the children. She had the ship's farmbots plow up a field and for an hour each day she tended it. She resisted Owen's attempts to name this "Mom's Hobby," Mada grew vegetables; she had little use for flowers, Although she made a specialty of root crops, she was not a particularly ac-

complished gardener. She did, however, enjoy weeding.

It was at these quiet times, her hands flicking across the dark soil, that she considered her commitment to the Three Universal Rights. After twotenths of a spin, she had clearly lost her zeal. Not for the first, that independent sentients had the right to remain individual. Mada was proud that her children were as individual as any intelligence, flesh or machine, could have made them. Of course, they had no pressing need to exercise the second right of manipulating their physical structures-she had taken care of that for them. When they were of age, if the ship wanted to introduce them to molecular engineering, that could certainly be done. No, the real problem was that downwhen was forever closed to them by the identity mine. How could she justify her new Trueborn society if it didn't enjoy the third right: free access to the timelines?

undone

"Mada!" Owen waved at the edge of her garden. She blinked; he was wearing the same clothes he'd been wearing when she had first seen him on Sonnet Street in front of The Devil's Apple-down to the little red cape. He showed her a picnic basket. "The ship is watching the kids tonight," he called. "Come on, it's our anniversary. I did the calculations myself. We met

eight earth years ago today."

He led her to a spot deep in the woods, where he spread a blanket. They stretched out next to each other and sorted through the basket. There was a curley salad with alperts and thumbnuts, brainboy and chive sandwiches on cheese bread. He toasted her with mada-fruit wine and told her that Siobahn had let go of the couch and taken her first step and that Irina wanted everyone to learn to play an instrument so that she could conduct the family orchestra and that Malaleel had asked him just today if ship was a person.

"It's not a person," said Mada. "It's a DI."

"That's what I said." Owen peeled the crust off his cheese bread. "And he said if it's not a person, how come it's telling jokes?" "It told a joke?

"It asked him, 'How come you can't have everything?' and then it said, 'Where would you put it?'"

She nudged him in the ribs. "That sounds more like you than the ship." "I have a present for you," he said after they were stuffed. "I wrote you a poem." He did not stand; there were no large, flailing gestures. Instead he

slid the picnic basket out of the way leaned close and whispered into her ear.

> "Loving you is like catching rain on my tongue. You bathe the leaves, soak indifferent ground: Why then should I get so little of you?

Yet still, like a flower with a fool's face,

I open myself to the sky."

Mada was not quite sure what was happening to her; she had never really cried before. "I like that it doesn't rhyme." She had understood that tears flowed from a sadness. "I like that a lot." She sniffed and smiled and daubed at edges of her eyes with a napkin, "Never rhyme anything again,"

"Done," he said.

Mada watched her hand reach for him, caress the side of his neck, and then pull him down on top of her. Then she stopped watching herself.

"No more children." His whisper seemed to fill her head.

"No," she said, "no more."

"I'm sharing you with too many already." He slid his hand between her

legs. She arched her back and guided him to her pleasure.

When they had both finished, she ran her finger through the sweat cooling at the small of his back and then licked it. "Owen,' she said, her voice a silken purr. "That was the one."

"Is that your comment?"

"No." She craned to see his eyes. "This is my comment," she said. "You're writing love poems to the wrong person."

"There is no one else," he said.

She squawked and pushed him off her. "That may be true," she said, laughing, "but it's not something you're supposed to say."

"No, what I meant was . . . "

"I know." She put a finger to his lips and giggled like one of her babies. Mada realized then how dangerously happy she was. She rolled away from Owen; all the lightness crushed out of her by the weight of guilt and shame. It wasn't her duty to be happy. She had been ready to betray the cause of those who had made her for what? For this man? "There's something I have to do." She fumbled for her shift. "I can't help myself, I'm sorry."

Owen watched her warily, "Why are you sorry?"

"Because after I do it, I'll be different."

"Different how?"

"The ship will explain." She tugged the shift on. "Take care of the children." "What do you mean, take care of the children? What are you doing?"

He lunged at her and she scrabbled away from him on all fours. "Tell me"

"The ship says my body should survive." She staggered to her feet. "That's all I can offer you, Owen." Mada ran.

She didn't expect Owen to come after her-or to run so fast.

~I need you.~ she subbed to the ship. "Substantiate the command mod.~ He was right behind her. Saving something, Was it to her? "No," he panted, "no, no, no,"

~Substantiate the com...~

Suddenly Owen was gone; Mada bit her lip as she crashed into the main screen, caromed off it and dropped like a dead woman. She lay there for a moment, the cold of the deck seeping into her cheek. "Goodbye," she whispered. She struggled to pull herself up and spat blood.

"Skip downwhen." she said, "six minutes."

".minutes six" ,said she ",downwhen Skip" .blood spat and up herself pull to struggled She .whispered she ",Goodbye" .cheek her into seeping deck the of cold the .moment a for there lav She .woman dead a like dropped and it off caromed ,screen main the into crashed she as lip her bit Mada ;gone was Owen Suddenly ~. ...com the Substantiate~ ".no .no .no" .panted he ",No" ?her to it Was .something Saying .her behind right was He - mod command the Substantiateship the to subbed she ~. you need I~ fast so run to or-her after come to Owen expect didn't She .ran-Mada ".Owen ,you offer can I all That's" feet her to staggered She ".survive should body my says ship The"".me Tell" fours all on him from away scrabbled she and her at lunged He "?doing you are What ?children the of care take ,mean you do What." ".children the of care Take" .on shift the tugged She ".explain will ship The" "?how Different" ".different be I'll ,it do I after Because" "?sorry you are Why" .warily her watched Owen. ".sorry I'm ,myself help can't I" .shift her for fumbled She .her made had who those of cause the betrayed have would she easily How ".do to have I something There's" .happy be to duty her wasn't It .shame and guilt of weight the by her of out crushed lightness the all .Owen from away rolled She was she happy dangerously how then realized Mada babies her of one like giggled and lips his to finger a put She ".know I"". . . . Was meant I what ,No" ".say to supposed you're something not it's but" ,laughing, said she ".true be may That" her off him pushed and squawked She .said he ",else one no is There" ".person wrong the to poems love writing You're" .said she ".comment my is This" .eves his see to craned She ".No" "?comment your that Is" ".one the was That" purr silken a voice her , said she ",Owen"

When threespace went blurry, it seemed that her duty did too. She waved her hand and watched it smear.

"You know what you're doing," said the ship.

"What I was designed to do. What all my batch siblings pledged to do." She waved her hand again; she could actually see through herself. "The only thing I can do."

"The mine will wipe your identity. There will be nothing of you

"And then it will be gone and the timelines will open. I believe that I've known this was what I had to do since we first skipped upwhen."

"The probability was always high," said the ship "But not cer-

"Bring me to him, afterward. But don't tell him about the timelines. He might want to change them. The timelines are for the children, so that they can finish the revol "Owen," she said, her voice a silken purr. Then she paused.

The woman shook her head, trying to clear it. Lying on top of her was the handsomest man she had ever met. She felt warm and sexy and wonderful. What was this? "I... I'm...," she said. She reached up and touched the little red cloth hanging from his shoulders. "I like your cape."

done

".minutes six" ,said she ",downwhen Skip" .blood spat and up herself pull to struggled She .whispered she ",Goodbye" .cheek her into seeping deck the of cold the ,moment a for there lay She .woman dead a like dropped and it off caromed ,screen main the into crashed she as lip her bit Mada ;gone was Owen Suddenly ~. ...com the Substantiate~ ".no .no .no" .panted he ",No" ?her to it Was .something Saying .her behind right was He - mod command the Substantiateship the to subbed she ~ you need I~ fast so run to or-her after come to Owen expect didn't She .ran Mada ".Owen ,you offer can I all That's" feet her to staggered She ".survive should body my says ship The"".me Tell" .fours all on him from away scrabbled she and her at lunged He "?doing you are What ?children the of care take ,mean you do What." ".children the of care Take" .on shift the tugged She ".explain will ship The" "?how Different" ".different be I'll .it do I after Because" "?sorry you are Why" .warily her watched Owen. ".sorry I'm ,myself help can't I" .shift her for fumbled She .her made had who those of cause the betrayed have would she easily How ".do to have I something There's" .happy be to duty her wasn't It .shame and guilt of weight the by her of out crushed lightness the all Owen from away rolled She was she happy dangerously how then realized Mada babies her of one like giggled and lips his to finger a put She ".know F"....Was meant I what ,No" ".say to supposed you're something not it's but" .laughing. said she ".true be may That" .her off him pushed and squawked She .said he ",else one no is There" ".person wrong the to poems love writing You're" .said she ",comment my is This" .eyes his see to craned She ".No" "?comment your that Is" ".one the was That" .purr silken a voice her . said she ".Owen"

Mada waved her hand and saw it smear in threespace. "What are you doing?" said the ship.

"What I was designed to do." She waved; she could actually see through herself. "The only thing I can do."

"The mine will wipe your identity. None of your memories will survive."

"I believe that I've known that's what would happen since

we first skipped upwhen."

"It was probable," said the ship

"But not certain."

Trueborn scholars pinpoint

what the ship did next as its first step toward independent sentience. In its memoirs, the ship credits the children with teaching it to misbehave.

It played a prank.

"Loving you," said the ship, "is like catching rain on my tongue. You bathe . . ."

"Stop," Mada shouted. "Stop right now!"

right now!"

"Got you!" The ship gloated.
"Four minutes, fifty-one seconds."

"Owen," she said, her voice a silken purr. "That was the one."

"Is that your comment?"

"No." Mada was astonished—and pleased—that she still existed. She knew that in most timelines her identity must have been obliterated by the mine. Thinking about those brave, lost selves made her more sad than proud. "This is my comment," she said. "I'm ready now."

Owen coughed uncertainly. "Umm, already?"
She squawked and pushed him off her. "Not for that." She sifted his hair through her hands. "Io be with you forever." O

Nancy Kress's latest novel, just out from Tor, is *Probability Sun*, the sequel to last year's *Probability Moon*. Both books are set in the world of the Nebula-award-winning novelette, "The Flowers of Aulit Prison," (*Asimov's*, October/November 1996). In her newest story for our pages, Ms. Kress takes a hard look at a future where genetic tampering—be it with people or crops—is strictly forbidden...



AND NO SUCH THINKS GROW HERE

Nancy Kress

Here life has death for neighbor, And far from eye or ear Wan waves and wet winds labor. Weak ships and spirits steer: They drive adrift, and wither They wot not who make thither; But no such winds blow hither. And no such things grow here.

> —Algernon Charles Swinburne. "The Garden of Proserpine"

ee, I have a problem," Perri said.

Dee Stavros held the phone away from her ear and yawned hugely. What the hell time was it, anyway? The clock had stopped in the night; another power outage. Her one window was still dark. The air was thick and hot.

"Dee, are you there?"

"I'm here," Dee said to her sister. "So you've got a problem. What else is new?

"This is different."

"They're all different." Only they weren't, really. Deadbeat boyfriends, a violent ex-husband, cars "stolen," a last-minute abortion, bad checks for overdue rent . . . Perri's messy life changed only in the details. Dee vawned again.

Perri said, "I've been arrested for GMFA," and Dee woke fully and sat up

on the edge of the bed.

GMFA. Genetic Modification Felony Actions. The newest crime-fighting tool, newest draconian set of laws, newest felonies to catch the attention of a blood-crazy public who needed a scapegoat for . . . everything. But Perri? Feckless, bumbling, dumb Perri? Not possible.

Professional training took over. Dee said levelly, "Where are you now?" "Rikers Island," Perri said, and at the relief in her voice-It'll be all right, Dee will clean up after me again-Dee had to struggle to hold her anger in

check.

"Do you have a lawyer?"

"No. I thought you'd take care of that."

Of course. And now that she was listening, Dee heard behind Perri all the muted miserable cacophony of Rikers Island, that chaotic hellhole where alleged perps for the larger hellhole of Manhattan were all taken, processed, and mishandled. But Perri didn't live in Manhattan, Nobody who could avoid it lived in Manhattan. The last time Dee had heard from her sister. Perri had been heading for the beaches of North Carolina.

For once, Perri anticipated her. "I think they took me to Rikers because it was an offshore offense. On a boat. A ship, really. . . . Get away! I'm not done,

you bitch!"

Dee said rapidly, "Relinquish the phone, Perri, before you get hurt, You

had your two minutes. I'll be there as soon as I can."
"Oh, Dee, I'm—" The phone went dead.

Dee stood holding it uselessly, Perri was what? Sorry? Scared? Innocent? But Perri was always those things in her own mind, Maybe Dee should just leave her there. Get out of Perri's life once and for all. Teach Perri a lesson. Just leave her there to fend for herself for once. . . .

But Dee was all too familiar with Rikers. She'd retired from the force less than a year ago. She started to dress.

"Why me?" Eliot Kramer said when he appeared at her fourth-floor, oneroom apartment door just after dawn. Grinny sunshine glared through Dee's big south window, the only nice thing about her room, other than its being on the far edge of Queens rather than the near edge. Many people were artaid of sunshine indoors. Ultraviolet, skin cancers—even though they'd been told that glass filtered out the danger. Most people never listened to what they were told.

"Why you? Because you're the only decent lawyer I know."

"Twenty years with NYPD and you know one decent lawyer? Come on, Dee."

"Decent in both senses, Eliot. Usually the moral ones are incompetent and the competent ones have been bought."

He shook his head. "Boy, I'm glad I don't have your outlook on life."

"You will. You're just not old enough yet."

"And how old is this sister of yours?" Eliot asked as they hurried down the stairs. "What's her name again?"

"Perri Stavros. She's twenty-seven. My kid sister—I raised her after our parents died in a train wreck."

"And what exactly happened?"

"Haven't any idea," Dee said. "And after she tells us, we still might not know."

"Wonderful," Eliot said unhappily.

wonderful, Enot said tunlappily.

They emerged into the street, into the pale green light under the thick trees. Young trees, saplings, twigs. . . this section of Queens had only been planting for six years, since the Crisis, and there were none of the large trees that richer neighborhoods had immediately imported from God-knewhere. Trees grew up through holes jackhammered into the aging sidewalk, up beside crumbling stoops, up from buckets until they were big enough to transplant. A whole row struggled to thrive in the street itself, which had been narrowed to one lane now that cars were so unaffordable. Fast-growing trees, poplars and aspens and cottonwoods, although all trees (and everything else green) grew rapidly now. Whenever possible, trees with broad leaves for the maximum amount of photosynthesis, maximum amount of graph dioxide scrubbed from the thick and overheated air.

"Not too bad this morning," Eliot said. "Pretty breathable."
"Not if we don't get rain," Dee said. Enough water, always, was the con-

Not if we don't get rain, 'Dee said. Enough water, always, was the concern. Will it rain today? Don't you think it's clouding up? Might it rain tomorrow? Water meant biomass growth, giving mankind a chance of getting back into control the atmospheric O₂CO₂ loop so dangerously rising toward 1 percent of CO₂, the upper limit of breathability.

"It'll rain," Eliot said. "Put on your mask, we're almost at the subway. One more question—do you at least know what class of contraband your sister

was caught with?"

"No," Dee said. "It's all felony, isn't it?"

"There's felonies and there's felonies," Eliot said, and put on his mask.

Perri had been caught with class-two contraband, which meant five to ten. "But there are extenuating circumstances," Perri said, looking pleadingly at Eliot, who merely nodded, dazed.

Dee was used to Perri's effect on men. Even in the smelly, hot (God, it was hot, and only early June), windowless interrogation room, and even dirty and smelly herself, Perri's beauty blazed. The perfect body, the long long legs, the thick honey-colored hair and full lips. But it was the eyes that always did it. Blue-green, larger than any other human eyes Dee had eyer seen, fringed with long dark lashes. Perri's eves sparkled, never the same two seconds in a row, unless you counted their unchanging sweetness of expression. How did Perri keep that sweet expression, with the life she'd led? Dee didn't know, hadn't ever known.

Eliot said, his tone not quite professional, "Why don't you just tell me the entire story from the beginning, Miss Stayros,"

"Perri, please," She put her hand on his arm, "You will help me, won't you,

Eliot?" The gesture was unstudied, genuine. It finished Eliot. "Everything's going to be all right, Perri," he said, and Dee snorted. No, it

was not. Not this time. This time, Perri may have dug herself under too deep for Dee—or Eliot—to pull her out. No. please God, no. Dee knew about the kind of prisons that genemod offenders were sent to, and what happened to them there. In the current public climate, GMFA felons were the new pedophiles.

Perri said, "Well, it started when I went down to North Carolina. To the beaches. I heard that sometimes holo companies recruited actresses from there? It turned out not to be true, but by that time I'd met Carl and well, you know." She lowered her amazing eyes, but not before Dee saw the flick-

er of pain.

"Go on," Eliot said, "What's Carl's last name?"

"He said Hansen, But it might not be, Anyway, I got pregnant."

Dee exploded, "How--"

"Don't yell at me, Dee. I know it was my fault. The implant ran out and I forgot to go get another one. And then Carl disappeared, and I didn't have the money for an abortion, so I started sort of asking around about a cheap one"

Suddenly Dee noticed how pale Perri was. It wasn't just the lack of makeup. Lips nearly the same color as her skin, dark smudges under her eyes . . . "You fool! Are you bleeding?"

"Oh, no," Perri said. "Everything went fine, Dee, and anyway I'm strong as

an ox. You know that." Eliot said, "Who performed the operation, Perri?"

"Well, that's just it. I know him only as 'Mike.' This girl I know said he was safe, he'd done it for her friend, and he didn't charge anything at all. He did it out of idealism." Her lips curved in such a tender smile that Dee was instantly suspicious.

"Was this 'Mike' an actual licensed doctor?"

"He didn't do the operation. My girlfriend introduced us at this bar on the beach, and Mike took me on a powerboat out to where the big ship was with the doctor aboard."

And Perri had gone with him. Just like that. Un-fucking-believable.

Eliot said, "Names, Perri. The girlfriend, the doctor, anyone on the ship, the name of the ship itself."

"I don't know, except for my girlfriend. Betsy Jefferson."

"Do you think that's her real name?"

"Probably not," Perri said. "The beach is the kind of place you get to be somebody else if you want to, you know?"

"I know," Dee said grimly. "Perri, do you know how much crime and smuggling go through Hilton Head?"

"I do now."

Eliot said patiently, "Go on with your story, Perri. Our time isn't unlimit-

"The doctor did the abortion. When I came to, I rested a while. Everyone was kind to me. Then Mike said he couldn't take me back, the ship had to leave. But he would send me in a little 'remote boat.' That's a—"

"We know what it is," Dee said harshly. "Smugglers use them all the time. They're computer-guided to shore from out at sea, so if the feds are there to intercept the stuff, at least they don't get the perps, too. Did the damn thing

dump you in the ocean?"

"Oh, no. It brought me right to a public dock in . . . Long Island? I guess so. The ship must have sailed a long way while I was knocked out. It was daylight. Mike said the remote boats aren't illegal. I would have been all right, except . . "

"Except what?" Eliot said gently.

Perri didn't answer for a moment. When she spoke, her voice was low. "The ship was full of plants. Flowers, little trees, all sorts of stuff growing on the deck in the sunshine. Beautiful.I... I wanted something to remember Mike by, You don't know how good he was to me, Dee, how kind. I felt ... anyway. I picked a flower when nobody was looking and put it under my shirt. I was wearing this loose man's shirt because since I got pregnant, nothing of mine fit right. Nobody saw me take the flower.

"One flower?" Dee said. "That's all?"

"The flower wasn't big, It had beautiful yellow petals that were the same color as Mike's hair. That's why I took it. Don't look like that, Dee! A cop saw the remote boat land and came over to the dock because even though they're so tiny I guess they're pretty expensive and he was checking it out. And I staggered a little getting out of the boat because it hadn't even been a day yet since the operation. I was feeling a little woozy. It was so hot, and it was a bad air day. The flower fell out from under my shirt. Below the petals along the stem were all these hard little balls, maybe two dozen of them. One burst apart when the flower fell, and the cop saw it and took me in. I don't even know what it was!"

"I do," Eliot said. "As your attorney, the charges were of course available to me and I downloaded them. The seed pods are awaiting complete analysis at the GFCA lab, but the prelim shows genetic modification for lethal insecticides. Airborne seeds, which makes it a class-two genemod felony."

"But I didn't know!" Perri cried. "And I never understood what's so bad about plants that kill insects, anyway! Don't look like that, Dee, I'm not stupid! I know the history of the Crisis as well as you do. But those genemod plants that almost wiped out all the wheat in the Midwest were only one kind of engineered plant, and if people like Mike believe that other genemods can be—"

Dee cut her off. "People like Mike are criminals in it for the profit. And it wasn't just the wheat-killing genemod that caused the Crisis. And you may not be stupid, Perri, but you surely have acted like it!"

Eliot held up his hand. "Ladies, the thing to focus on here is-"

"No, Dee's right." Perri said. She sat up straighter and her washed-out, lovely face took on an odd dignity. "Tve been a fool, and I know it. But I had no . . . what is it, Eliot? Criminal intent? Surely that counts for something."

Eliot said quietly, "Not very much, I'm afraid. I don't want to lie to you, Perri. The GMFA Act is intended to prosecute illegal genemod organizations working for profit and willing to do anything at all to protect that profit. The Act is wide-reaching and harsh because it's modeled on RICO, the old Racketeering Influenced and Corrupt Organization laws, and because genetic engineering represents such a danger to the entire planet since the Greenhouse Crisis, Or politicians think it does, Unfortunately, people like you fall under the Act as well, and I wouldn't be doing my duty by you if I didn't inform you honestly that your case isn't going to play well in front of a jury of the usual hysterical citizens whose grandmothers and babies are having trouble breathing."

"But the Greenhouse Crisis and the wheat kill-off were two separate

things!" Perri cried, surprising Dee.

"But most people don't separate them because they happened concurrently," Eliot said. "All at once the air was ruined, there was no bread, prices for everything rocketed because the government made energy so expensive to try to control industrial emissions . . . all at once. In my experience, that's how juries see it. Perri, I think you're much better off pleading guilty and letting me plea bargain for you.

Perri was silent. Dee said thickly, already knowing the answer, "Where

will she do time?"

"Probably Cotsworth. It's the usual place for the east coast."

Cotsworth. It was notorious. Dee had never been inside, but she didn't

have to be. She'd seen other places like it. It wasn't as bad as the men's worst prisons-they never were-but a girl who looked like Perri . . . was like Perri.... Perri said, "All right, Eliot, If you think I should plead guilty, I will,"

Trusting him completely, on a half-hour acquaintance. Exactly how she got into this in the first place with "Carl," with "Mike." She would never learn.

Eliot said, "I'll do everything I can for you, Perri."

A wan smile, but the astonishing blue-green eyes dazzled. "I know you will. I trust vou."

Dee wasn't Perri. She probed, tested, cut. "What if the FBI finds 'Mike'?" "They won't find Mike," Eliot said. They stood at the subway entrance before the hellish descent underground. Eliot was going to his office in Brooklyn, Dee to Queens. "God, you of all people know they won't find Mike. The Genetic Modification Crimes section of the FBI is overworked, there aren't enough of them, and Perri is such small potatoes they probably won't even look for Mike."

"The ship doesn't sound like small potatoes."

"They might not even believe the ship exists. Perri wouldn't be the first perp to falsify events."

"Do you think that's what she's doing?"

"No," Eliot said. "I think she's telling the absolute truth. I think she's that rare find, a person incapable of dishonesty. But I don't think the FBI or the federal attorney will think so. They're paid not to."

"But you think the ship exists," Dee persisted.

"Yes. There are dozens, maybe hundreds, of them out there, in international waters where it's much harder to do anything about them. They genemod everything from insect-killing supercrops for idealists who want to

save the Earth, to insect-killing supercrops for profiteers who want to own it. And who don't care if they inadvertently kill off an entire Third World country's rice crop in the process. Oh, Perri's ship is out there, all right, with 'Mike' running it. Although why he's also performing abortions is a bit murky. But I'm going to downplay that aspect with the federal attorney. It makes Perri look irresponsible." "She is irresponsible."

"Sometimes," Eliot said, "what looks like irresponsibility is really innocence."

Here we go again, Dee thought. But if a ridiculous infatuation would in-

crease Eliot's work on Perri's behalf, let the poor sot be infatuated.

It was ironic. Raising Perri, she was always the one "mother" who wouldn't let Perri take the bus by herself, walk home from school alone, go downtown. Cops were like that, Unlike the other mothers. Dee had known what was waiting out there in the street. And then the grown-up Perri sought out more trouble than any of her childhood friends.

Dee said, "So you don't think the authorities will look for Mike. And even

though it would help Perri's plea, you won't, either."

Eliot said bluntly, "I can't afford the resources to look. Can you?"

"No." Dee said.

"Also, the case will be heard in under a week, probably. They dispose of these small things as fast as they can, fair or not. You know that, Dee."

"Yes, I know that. But finding the ship would aid an appeal for Perri."

"Yes. But they're not going to find it, Dee."

"No," she said. "But I am."

THE COAST OF CAROLINA IS THE NEW FLORIDA! blared e-banners at the train station. Dee believed it. Ruin one area, making it so hot the ecology becomes frightening and the people leave, move on to another, Most of Florida was now genuine jungle, teeming with foreign plants and animals escaped from Miami International Airport, always the major import center for such things. Monkeys, caimans, lygodia, alligators, and insects carrying everything from dengue fever to new diseases without names. Some of them, of course, genemod. It was the diseases that had made West Palm retirees, South Beach fun seekers, and the Miami criminal underground all move north.

She took a cheap motel room far from the action and went shopping. To the experienced, cops were instantly identifiable. That included ex-cops. She bought a modest swimsuit which at least covered her nipples, added a loose sheer robe to veil her forty-four-year-old body, studied the locals and purchased something guaranteed to make her hair lie in flat sculptured loops along one side of her neck. She didn't overdo it, another classic mistake of undercover cops. Her lipstick wasn't too gold, her eye makeup not too blue. She bought her beach bag, sandals, and music cube at a used-stuff store. She would do.

The long stretch of white-sand beach, natural and artificial, turned out to be informally segregated: gay beach, retiree beach, kid beach, sex-and-criminal beach. "I'm looking for Betsy Jefferson," she told the bartender at the first bar on the right beach.

The bartender gathered up glasses. He looked like he'd been behind the

bar for a very long time. "Why do you want Betsy?" "I need to talk to her. Do you know where she is?" "No. Last I heard, she's working someplace for her uncle."

Of course. It was the number one response cops heard. You ask anybody what they, or anyone else, did for a living, and they said, "Work for my uncle." The entire underworld was employed by uncles. Dee said, "I'm really looking for Perri Burr, I'm her sister," Perri had used

"Burr" as her "beach key."

The bartender squinted at Dee. "Yeah, you look a little like her," he said, which was either kindness or blindness. "Around the nose. All right. Betsy's working at the Adams. Out Surf Street."

"Thanks." Adams. Burr. Jefferson. Eighteenth-century WASP aliases for twenty-first-century punks. Dee wondered if they even knew who the origi-

nals had been.

The Adams was a sex-show-and-fizz club that wouldn't even open until midnight. Dee went back to her motel and shopped again, this time for a cheap e-dress that shimmered strategically on and off around her body. Then she slept.

At one in the morning Betsy Jefferson started to perform. She was older than Perri, and older than she looked, gyrating her aging flesh through stage sequences as repulsive as anything Dee had seen when she'd worked Vice. Dee, her dress on full coverage, tried to picture Perri in this setting. She failed. Eliot was right: Perri's fuck-ups had a quality of innocence foreign to the Adams, with its forced glitter and real sadism. Perri fucked up irresponsibly but not cruelly. When Betsy finished, blood from a dead monkey smeared the stage and her own naked body.

Dee sent a note backstage and the bouncer let her through. Betsy stood in a basin of water sluicing herself down. "Hi. I'll be done in a minute."

"Thanks for seeing me."

Off-stage and covered, Betsy Jefferson looked even older and much wearier, "Perri talked about you. She looked up to you, You still work with homeless babies?" Actual discretion on Perri's part. Dee was grateful. "Yes. But it's Perri I'm

here to talk about. You know she was arrested on GMFA."

"Yeah." Betsy didn't meet Dee's eyes. "I heard."

"She's disappeared, Got away from a federal marshal, Fucked her way free."

Betsy smiled. "Yeah? Good for her."

"I think so, too. But I'm worried, Betsy, because she's flat-line broke. I want to give her money so she can go underground armed and flush."

Betsy nodded. "She said you always took care of her."

"And I always will. Do you know where I can find her? Has she turned up anywhere back on the beach?" "Not that I heard." "Then do you know where I can find 'Mike'? The guy that got her the abor-

tion on the ship?" "She told you about that, yeah?" "Perri tells me everything," Dee said. "She knows I just want to take care

of her. "Yeah, she said. And you're fucking right about one thing. Without money,

she won't last long here."

"That's what I figured."

Betsy studied Dee. Dee didn't have to fake concern. Abruptly Betsy said, "Perri never worked no place like this, you know."

Dee was silent.

"She didn't have to, with her looks. Wouldn't have done it anyway. I told

her to go back to you and get a decent life."

"Thank you. Too bad she didn't listen," Dee said. For the first time, she saw why Perri had trusted Betsy, saw what wasn't totally extinguished in the older woman. Dee wondered if Betsy had ever had any kids of her own. Who was Perri substituting for?

"You won't find Mike, Dee, Not unless he wants to find you."

"Can you make it so he does?"

"Maybe."

"I really want Perri to have the money. It's a lot. All I've saved."

"Where you staying?"

Dee told her, and Betsy made a face. "Okay. Go back to Queens."

"Back to Queens?"

"Look," Betsy said, "You're new at this. Mike ain't here anymore, not after Perri's arrest. Perri ain't here, either, or I'd of heard about it. People know I sort of looked out for her. But I know Mike, Mike knows people, people get around. Give me your address in Queens and go home."

Dee had wacoed it. Her first contact on the beach and she'd exploded the possibility of more. If she didn't go back to Queens, Betsy would hear about it and question why. Word would get around much faster than Dee could. Nobody would talk to her. Nobody.

"Thanks," she said, smiling at Betsy.

At her sentencing Perri stood ashen and dry-eyed. She wore a loose gray coverall so old and laundered that the tired cloth draped softly around her body. With her hair unstyled she looked incongruously virginal, a maiden in innocent distress. Dee, the only spectator in the court, grasped the ancient wooden railing so hard that its oily grime became embedded in the creases of her palms. The courtroom was on half AC; apparently somebody had decided that federal judges deserved some relief from New York air, despite the exorbitant cost of all emissions-creating energy. Even so, Dee couldn't breathe.

Eliot had made a deal with the feds. Dee suspected it had cost him all his markers. Perri pleaded guilty to class-three genemod possession.

"The court has considered the federal prosecutor's recommendations in this case," the judge said in a bored voice, "and accepts them. Six months in prison, no time off for good behavior, followed by six years probation. Counselor, do you have anything to add?"

"No, your honor," Eliot said.

"Bailiff, remove the prisoner."

And that was all. Dee had seen it, participated in it, how many times? Dozens, maybe hundreds, But this was Perri.

"I love you, Dee!" she called as she was led away, and her attempt to smile for her sister's sake cauterized Dee's heart.

"You can visit next month," Eliot said somberly.

"If she's still alive by next month."

He was practical, "Did you put the maximum amount allowable in her prison account?"

"Of course," Dee snapped. "I know how the system works."

"Unfortunately," Eliot said. "Buy you lunch?"

"No. You stay inside-it's a bad air day," Dee said brutally. "I'm going home." "Dee I did the best I could."

He had. She was too enraged to give that to him.

At home she checked the non-traceable money chips hidden in her apartment, plus the legal surveillance equipment and illegal nerve gas. When Mike showed up, she would either buy her way to the ship, and to evidence for a legal appeal, or bring him down herself and let the authorities pursue it. Once they had a live body, they might actually do that, Maybe,

The money was safe. As she had done every night for a week, Dee swallowed the foul drink that would neutralize the nerve gas in her own lungs for twelve hours. Military stuff, it was highly illegal for her to have it. She

no longer cared.

Then she tried to sleep.

The air was exceptionally bad today. Choked with greenhouse gases, CO2 pushing maybe point seven-five, when had it gotten this bad? She was having trouble breathing she couldn't breathe

Dee awakened strangling. Cord bound her neck, her legs, her arms . . . no. one arm was still free. Desperately she worked a finger between her neck and the tightening cord; it gave slightly and she was able to pull it far enough away from her neck to gasp in a breath of fetid air. But that would only work for a moment, her assailant was sure to . . .

There was no assailant. She was alone in her apartment, strangled by tough green stems that had almost buried her in foliage. Dee screamed once, but then her cop reflexes kicked in. She flexed everything to see what was loose and found a frond not yet wrapped completely around both her body and her bed. She contorted her body so that her free hand, without removing the index finger from under the noose at her neck, brought the loose frond to her teeth, her only available weapon. She bit hard.

The stem parted and fell into two parts. She grabbed wildly with her limited reach for another stem. They were growing . . . she could actually see the stems growing around her in tiny, fatal increments. She bit through a second stem and filled her mouth with bitter leaf. What if it was poison?

Don't think about it now She bit another stem.

Writhing on the bed, half-pinned, Dee fought the mindless green with everything she had. At one point she thought she'd lost; there were too many tendrils. But the plant was mindless. By calculating where the worst danger was and working her way doggedly toward that point, by reason and strength and sheer luck, she got a hand free enough to break the glass of water by her bedside and attack with the broken glass. Blood streamed over sheets, leaves, herself,

She was free. She rolled off the bed, leapt away, and collapsed on the floor.

From here, the plant looked to be growing much more slowly. No more than six inches an hour Six inches an hour. She didn't know that even the underground genemod

labs had achieved that. Splice phototropism genes to growth ones, maybe? She didn't know. She didn't want to know. She had almost died.

The nutrient box sat under the bed, maybe two feet square, tilted toward the big south window that was the reason she'd taken the apartment. It hadn't been there when she'd gone to bed. Whoever had put it there had known how to disable the surveillance equipment and nerve gas. The plants had probably grown slowly, if at all, until dawn. Then the light had driven their super-efficient energy use to put everything into growth, a riotous deadly burst of it that had depleted them utterly. Already the oldest leaves

were turning yellow at the edges. Live hard, grow fast, die young.

Dee looked for the patch. She found it on her ankle, peeled it off. Whatever had dripped into her bloodstream had kept her knocked out far into the light-rich morning. It was almost noon.

She crouched on the floor and watched the spent kamikaze plant die.

"And the money was still there," Eliot said.

"Not touched."

"So they just wanted to kill you."

"Head of the class, counselor," Dee snarled. She was still shaky. They sat in a coffee shop near Dee's building. The air was very bad today, some people wore masks even indoors. The room was stifling. Dee could remember when air conditioning didn't cost the Earth. Literally.

She continued, "I want to know what's best to do, Eliot. If I call the authorities and take them up to see the evidence of a murder attempt, will it

help Perri's appeal?"

"I don't see how," Eliot said. He pulled his sticky shirt away from his chest for a moment. "You can't prove who did it, or even that the murder attempt was in any way connected to Perri's experiences. Yes, it was a genemod weapon, but that doesn't link it to any specific illegal organization."

"God, do you suppose I've got legions of people out to kill me? Who else

could it be?

"You're an ex-cop," Eliot said. "I don't have to tell you that ex-cops get deviled by people they arrested and sent to jail, sometimes years after the fact. There are a lot of crazies out there. Your 'evidence' is circumstantial, Dee, and barely that. There's no solid link."

"And what would be a 'solid link'? My actually turning up dead?"

"Not that, either. Dee, you're being stupid. You of all people ought to know that you can't play in this league. You just can't."

"And the FBI won't."

"Only if they just happen to stumble across it. Otherwise it's too small for them, and too big for you. Give up, Dee. Do you want to go with me to see Perri this afternoon?"

Dee grew still. "I thought she couldn't have visitors for the first month." "Doesn't apply to me. I'm her attorney. I'll get you in as part of her legal

team."

"Yes. Oh, yes."

Eliot opened his mouth as if to say more, closed it again. He finished his

coffee.

Dee sat silent on the train to Cotsworth, preparing herself. Even so, it was a shock.

a shock. "Hello, Dee. Eliot," Perri said. She succeeded in smiling through her swollen lips. One eye was completely closed with bruises. Even in the prison

coverall if was obvious she'd lost weight.
"Perri . . . Perri." Dee pulled herself together. "I told you not to fight back.

With anybody."
Eliot said gently, "Guards or inmates?"

"Both. Eliot, don't file any complaints. It'll only make it worse on me."

He didn't answer. He knew she was right. So did Dee, but rage rose in her

throat, tasting of acid. Eliot said, "I've filed an appeal, Perri." She brightened. Dee knew the appeal would be denied; there were no

grounds. But anything to give her sister a little hope in this hell.

And Perri was magnificent. She chatted with Dee and Eliot. She asked after their lives. She did everything possible to pretend she was not in pain and despair. When the short visit was over, and all the checkpoints had been passed. Dee turned to Eliot.

"Don't ever tell me again to give up. Not ever."

She looked two places: the activists and the criminals. She was looking for the overlap.

The environmental activists were not as numerous or as angry as they'd been before the Crisis, for the simple reason that they'd won. Dee understood that. She also understood what had to be their next move: semi-un-

derground activism.

It went like this: You spend your life driven by the desire to outlaw genetic engineering, and then it's outlawed, and you're spiritually unemployed. For a while you try other causes, but it's not the same. So you organize groups to attack suspected genemod violations, on the grounds the authorities are (pick one) lazy, corrupt, stupid, burdened by bureaucracy. You then can spend time ferreting out illegal labs and farms and destroying them. You're back in the game. Of course, you're also vigilantes and thus must fight the cops as well as the violators, but for a certain type of person, this only makes it more interesting.

Dee started with New Greenpeace. At her first meeting she met a woman angry enough to be a good candidate for "subversive projects." The woman, Paula Caradine, was suspicious of Dee, but Dee was used to suspicious in-

formants.

"Why are you interested in subversion?" Paula asked. She was stocky, plain, very intense.

"My sister's in jail for a genemod offense she didn't commit. She was framed."

"Oh? What's her name?"

"Perri Stavros. I'm Demetria Stavros. I used to be a cop with the NYPD.

Perri's conviction changed things for me. The FBI isn't getting the job done
right, even though they've got the Act now, or Perri wouldn't be Inside and
the polluters Outside."

Paula said, "Nothing's going on right now," which was probably a lie. Dee was used to being lied to. Everybody lied to cops: suspects, witnesses, victuss. It was a fact of life on the street. Paula said no more, which was a good sign. She'd have Dee and Perri checked out, find out Dee's story was true. It

was a start. Building informants was a slow process.

In Manhattan, they were already built, at least the ones that hadn't been killed or been jailed or died of "environmental conditions." Dee had only been retired a year. However, a week of networking and bribery turned up

nothing but the usual empty lies. Then she turned up Gum.

Nobody knew how old he was, not even Gum himself. He had purplish melanomas on his bald head and exposed arms. Disease, or sunlight, or bad luck. He refused medical treatment, air masks, false techt. Gum lived everywhere, and nowhere. He remembered life before the Crisis, before the business light from Manhattan, maybe before the turn of the century. He was old, and stinking, and dying, and his sheer survival this long had earned him a sort of mythic dimension, like a god. There were punks and sears and

hyenas in the Park who actually believed that killing Gum would bring horrible retribution. Although Dee had trouble imagining anything more horrible than the life they were already leading. The Park, along with several other sections of Manhattan, had slipped completely beyond police control. No cop would go there, ever, for any reason.

Dee caught Gum in a bar near the rotting East River docks, on a street

unofficially declared a neutral zone. "Hey, Gum."

He peered at her blankly. Gum never recognized anybody overtly. Dee suspected he had an eidetic memory.

"It's Dee Stavros. With the NYPD."

"Hey."

"You want a soda?" Gum never drank alcohol.

"Hey." He hauled himself onto a stool next to her.

"Gum, I'm looking for somebody."

Gum said in his cranky, old-man voice, "I been looking for God for a hunnert years."

"Yeah, well, let me know if you find Him. Also a guy who could be calling himself Mike.' Or not. Runs a genemod illegal on a ship. Also does abortions there."

"Abortions?" Gum said doubtfully.

"Yeah, you know, rape-and-scrapes. Women's stuff. You hear anything about that?"

"A hunnert years," Gum said. "He went missing."

Gum meant God, not Mike, Gum only talked when he was ready.

"You hear anything, I'd like to know about it." She slipped him the money chips so unobtrusively not even the bouncer saw it.

"Just went missing, left us like this."

"Don't I know it, Gum."

She went to another activist meeting, worked more on Paula Caradine. Before anything could happen, Eliot called her. His voice had the ultracon-

trolled monotone that a lot of lawyers used for something really serious.

"Dee, I want you to see something. Meet me at the genemod evidence cen-

ter in an hour. You know where it is?"

"Of course I know where it is. Can you say-"

"No." He clicked off.

The Genetic Modification Felony Actions Evidence Center for Greater New York was in Brooklyn. It was another bad air day, Dee wore her mask for the entire trip plus the fifteen minutes she hung around outside. No admittance to the heavily guarded building without five million authorizations. Finally Eliot showed up ("Another breakdown on the subway") of them inside, and was shown to an e-locked room. Dee recognized the negative-pressure signs in this whole wing. Nothing, not even spores, could drift out. She and Eliot had changed into paper coveralls. They would have to go through decontamination to get out again.

Eliot keyed the e-locked door and it opened.

Dee gasped. Years of training couldn't weigh against this. The single plant sat in the middle of the small room. A bush as tall as Dee's shoulders, it had broad, very pale green leaves on woody branches. In the center of each leaf was a closed human eve. Eliot turned up the light and the eves opened.

Perri's eves.

Each one was the startling blue-green that Dee had never seen on anyone else. Their pupils turned toward the light source. A hundred eyes, moving in unison, blind.

The evidence biologist explained it to me," Eliot said. "The eyes are lightsensitive but they can't actually see. They're not wired up to any brain. There's a human eye gene, 'anirdia,' that can be introduced onto animals in weird places, insect wings or legs, and they'll grow extra eyes. Nobody knew you could put it into plants."

"Why? What is it?"

"It's an art to ject," Eliot said grimly. "A sculpture. Apparently the artist is well-known in the underground circles that traffic in these things. He's in custod,"

"Mike—"

"Was the supplier, of course. The eyes were grown from the stem cells from Perri's aborted fetus. Stem cells are easiest to grow into any organ. But the so-called artist is refusing to talk. On advice of attorney."

"Will he deal? If you offer enough?"

"I can't offer anything, Dee. It's not my case. But no, I don't think he'll talk. More and more of these genemod illegals are being acquired by organized crime. The FBI and NYPD have just established a joint task force on illegals. The artist would rather face the court than face the mob."

"But it's obvious these are Perri's genes! They can do a DNA match!"

Why bother? You can't prove she didn't give Mike the tissue, or sell it to him. It doesn't clear her at all. I just thought you ought to see that the chances of getting Mike on other charges have gone way up. He's connected to the artist who's connected to the mob, so Mike is going to get serious attention. They'll get him if they can."

Dee faced him, "I don't want revenge, I want Perri freed."

"Are you sure you don't want revenge? Perri's told me a bit about her childhood. You overprotected her, Dee. You made her feel the entire world is dangerous."

"It is."
"But you also taught her she can't cope with it without you. That without you, she's bound to screw up. And like a good daughter, she's been proving you right ever since."

"She's not my daughter, and-"

"She might as well be. You were the only mother she had."

"You don't know jack shit about it!"
"I know what Perri's told me."

Dee demanded, "You see her? A lot?"

"Every chance I can. Don't look like that, Dee. She's not a child anymore, and as you just pointed out, you're not her mother."

"Fuck you, Eliot. You're fired. You're not Perri's attorney any more."

"That's not your decision." Eliot said.

"I pay her bills!"

"Not this one." His gaze was steady.

Dee strode toward the door. Going through it, she slapped off the light.

The blue-green eyes on the pale leaves, Perri's eyes, blinked and closed.

"We're hitting a farm tonight," Paula said abruptly. "You can come along." "I checked out, huh?" Dee said.

"Why didn't you mention that the bastards tried to kill you with a bioweapon?"

"I thought I'd give you something to research," Dee said. She hid her surprise that "the group"-pretentiously, they had no other name-had turned up the attack in her apartment. They were better connected than she'd thought. No official police report had been filed.

"We meet here at two A.M." Paula said. "Wear dark clothing that covers your arms and legs with at least three layers of cloth, and good boots. We'll

supply gloves and mask."

"Got it. Paula . . . thanks."

"I know how it is," Paula said cryptically. Dee didn't ask what she meant. Sixteen people, packed into two vans with blackened windows and an opaque shield between driver and passengers. No names, faces behind masks; Dee wouldn't be able to identify anyone except Paula. They rode for at least forty minutes at variable speeds. When the van stopped, they could have been anywhere.

"Stay in single file," their "group leader" said. He led them through the darkness, one flashlight in the front of the line, off the road through a small woods, then across at least three open fields divided by strips of under-

brush. Finally the line halted.

The genemod farm was an acre lot of saplings, Sold as transplants, Dee guessed. Genemod illegals had learned not to fence or firewall their farms; it attracted too much aerial-surveillance attention. To Dee these saplings looked like any other stand of young trees. What were they genemod for? It didn't matter. Their creation was the kind of irresponsible activity that had caused the Crisis, when one food crop after another had been wiped out by fast-growing, herbicide-resistant, genetically created "super-plants" with no natural enemies. The kind of irresponsible activity that had, in the end, caused most of the Midwest to endure the controlled burn. The kind of irresponsible activity that had ruined agribusinesses, spurred hoarding, and weakened an already staggering economy.

The kind of activity that had jailed Perri.

"Chop each tree clean through at the base," the leader instructed. "Don't work on adjacent trees or you risk cutting each other. Be quiet and quick.

The acid team is right behind you."

Dee took the row of trees he gave her. She buzzed her saw through its base, surprised at the savage pleasure it gave her. The air filled with muted buzz (much of the sound was white-noised somehow) and with the sharp smell of the acid poured over the fallen limbs and rooted stumps. Dee felt energy flow into her as she destroyed the crop. Over the havoc she listened for the sound of defending copters or guns, but no one came. She laughed aloud.

"What's so funny?" Paula said, on the next row.

"I just remembered something. An old poem. 'Only God can make a tree.'"

"Huh," Paula said. "Forget poetry and just saw."

Dee sawed, every vibration a vicious joy. When they were done, the activists slipped over the fields to the vans. Behind them, the carefully created grove lay in acrid burned waste.

"I found him," Gum said.

Dee tensed. It had taken a long time to locate Gum again. Shed finally found him inside the base of the Brooklyn Bridge, living with a group of people armed with shoulder-launched missiles of some type. Where the hell had they gotten them? The things looked military. The whole set-up was one Dee would never have approached at all if two different informants hadn't said Gum was there. One, heavily bribed, had had the e-mail address. An electric cable snaked across the ground and into the bridge, undoubtedly stealing very expensive energy until the power company discovered it. No longer Dee's problem. She e-mailed Gum, and at the appointed hour he emerged from the Bridge looking as dirty and demented as ever.

They sat on packing crates set a hundred yards from the Bridge in an empty lot strewn with broken glass, rags, unidentifiable chunks of metal.

Dee counted six rats in two minutes.
"Where is he?" she asked Gum.

"Everywheres. Nowheres. Gone and back. A hunnert years."

"Not God, Gum! I thought you found Mike!"

"Gone and back. A hunnert years."

Dee held on to her temper. This visit was too important, and too dangerous, to ruin. She waited.

Finally Gum said, "He watches Mike. He watches me. He watches you. He knows."

"What does He know, Gum? Will you tell me so I can know, too?"

"He knows Mike din't do it. The plants."

"Mike didn't take my sister to a ship illegal with genemod plants?"

"Oh, yeah. Praise the Lord."

"Mike did take Perri to a genemod illegal?"

"Oh, yeah," Gum said. Rheum oozed from his filmy eyes. "Gone and back."
"He took her to the ship and he sent her back. But where is Mike now?"
"God sees."

Dee put her hands on her knees and leaned forward. Another rat ran across the lot. Closer to the Bridge a man stood holding a rifle and looking right at her. "Gum, what are you doing with these people who live in the

Bridge?"
"A hunnert years. Straight to God."

"You're their priest," Dee said. It seemed unlikely, but not impossible. Since the Crisis, a hundred weird religions had sprung up to explain the Earth's new harshness, atone for the Earth's new harshness, find hope in the Earth's new harshness, atone for the Earth's new harshness, find hope in the Earth's new harshness, all kinds of shit. Even criminals, it seemed, could believe in God. Some sort of God. And it might explain what Gum, old and mumbling and shambling, was doing with these well-equipped felons who frankly scared the fuck out of Dee. Priesthood might explain it. Or it might not.

Gum said, "He din't do it."

"God?"
"Mike."

"What didn't Mike do, Gum?" They were going in circles.
"He din't send that plant to kill you in your apartment."

Dee's breath stopped. "Do you know who did?"

"Tother side. A hunnert years."

"Gum, what other side? Who sent the plant to kill me?"
"Look to God," Gum said, and lurched to his feet.

Dee stood and grabbed at him. "You can't go now! You have to tell me the

rest!"

The old man tried to pull free. The guard raised his rifle. Hastily Dee released Gum. As he shuffled away, she called after him, "What other side, Gum? Who sent the plant?"

"It was in all the newspapers," Gum said over his shoulder. "You was dead."

"Gum . . ." He was gone.

was gone

She kept at her informants, getting the word out, spending her savings on sweeteners. She went on another raid with Paula's group, destroying another open farm in Jersey. She visited Perri at Cotsworth, and each time Perri was thinner and quieter and walked with more difficulty. Dee papered the Correctional System with complaints and charges and anger, and none

of it brought any changes whatsoever.

Paula's group hit an arboretum in Connecticut. Under thick plastic grew bed after bed of lush foliage genemed for ... what? It didn't matter. By now, Dee wasn't even curious. To get into the arboretum they had to blow open the glass with semtex. Instantly alarms wailed. They tossed in the flamers and scattered. Dee, following her instructions, circled widely to the left and ran through an under-road culvert full to her knees with stinking water. Spider webs tore from the roof onto her face. Lights raked the area from a tower she hadn't known was there, and she could hear a copter roaring closer. But she made it to the van and back onto the highway and all the way to her apartment.

Only later did she hear that two activists died in the raid. One of them

was Paula.

The next evening Eliot called. "Jesus Christ, Dee, what the fuck are you doing?"

He knew about the raid. No, impossible, how could he know? Then he'd

heard about her working the street. Dee said nothing.
"How could you go down to see Perri and then gouge into her about what
a screw-up she is? 'You made bad choices, you've messed up your life, this
prison time will follow you around forever.' ... how could you, Dee?"

"It's all true."

"So what? She's barely hanging on in that hell-hole and she doesn't need you to go in there and—"

"How the fuck do you know what she needs? I've taken care of her since she was two years old!"

"And you've made her believe she can't take care of herself without you.

You screwed up her life if anyone did. So stop this—"

Dee slammed her fist into the OFF key. She raged around the one-room

apartment until her own fury scared her. Then she tried to calm down: deep breathing, lifting weights, a cup of hot tea. At midnight she finally slept.

At three she jerked awake. Someone was in the apartment.

Her hand slid under the blanket for her gun. Before she could grasp it, both arms were jerked above her head and cuffed. The light went on.

He took off his night-vision hood and pulled a chair beside her bed. Silently he studied her. He was medium height and build, late thirties, brown eyes. Hair the color of a yellow flower. Dee stared back, refusing to show fear. She said. "You're Mike." "Yes. Although the name is Victor."

She snorted and he smiled. "No, really. You don't look much like Perri, Dee. Come on, we're going out."

She began to scream. The walls were thin; someone would hear, Immediately Victor slapped a gag strip over her mouth. He pulled off her blankets and cuffed her ankles, ignoring her kicks. Wrapping her in the blanket as if she were sick, he lifted her easily and carried her, a dead weight, down three flights of stairs. He was much stronger than he looked.

A car waited at the curb. Dee thought, incongruously, how long since I rode in a car? Years, Cars were emission-producing demons, People destroyed them like cockroaches. Only emergency vehicles were exempt, and

this powerful sleek car was no emergency vehicle.

They drove through the empty, pot-holed streets, Victor and Dee in the back and the unseen driver behind a shield in the front. Victor removed her

"Dee, no one is going to hurt you." Oh, right, as if she believed that. "There's something I want you to see."

"Why?"

"Good question. I guess because I hate waste. You've wasted a lot of time raiding genemod illegals and harassing ineffective authorities and putting out the word on me throughout Manhattan. Is that ankle cuff too tight for comfort?"

"No. It's Perri whose time is being wasted."

"I'm sorry about that. There was never any intention that she be charged with anything. I had no idea she'd take a genemod plant."

"You merely took her fetal tissue," Dee said.

"Yes. It's the best tissue for human genetic engineering, you know. Stem cells are malleable, the amniotic sac grows organs well, the placenta . . . but I don't think you're interested in scientific details. It should have been a mutual gain. Perri wanted to abort, I wanted the tissue."

"To create plant 'art' that has her eyes."

"No," Victor said. He shifted on the back seat of the car. "I don't dabble in decorative perversity. I sell the girls' fetal tissue to whoever can pay well for it. Our real work requires money, No. don't ask questions now, I want to show you." And, incredibly he leaned into a corner of the car and went to sleep.

Dee tested the door, her bonds, the seat belt. Nothing gave. Victor snored softly. She could probably kick him with both feet, but belted in like this, it would be a kick so feeble as to be pointless. Slack, his face looked oddly older. Forties, maybe, Even through her fear and outrage, he puzzled her. Something was off about him. He didn't seem like any criminal she'd ever seen, not even the smooth-talking, easy-sleeping sociopaths.

The car stopped. Victor woke and carried Dee along a deserted dock. A remote boat waited, barely big enough for the two of them. Victor untied the mooring lines and pressed a hand-held, and the boat took off silently across

the dark water.

The night was cloudy. Dee could see various lights, but she had no idea what they were. Ships? Land? Buoys? A wind blew and the sea became choppy. Water sloshed into the boat. Dee felt herself growing seasick.

Victor must have known the signs, Expertly he held her head over the side while she vomited. "Almost there!" he called over the rising wind. Dee threw up again.

The storm looked ready to break in earnest by the time they drew up alongside what seemed to her a huge ship, completely dark. A metal basket was lowered and Victor dumped her into it. Dee hated feeling helpless. Almost she would rather be knocked out than trussed up and hauled in like mackerel or od.

She got her wish. Someone on deck leaned into the metal basket and slapped a patch onto her neck. No way to dislodge it, and in ten seconds

everything disappeared.

She woke in a narrow cabin as steady as if on land. Victor, looking much more rested, sat in a chair beside her bunk. Dee struggled for the dignity of

sitting upright. "Where are we?"

"At sea. The storm passed while you were out. It's a lovely day." He lifted her and carried her into a narrow corridor where a wheelchair waited. The blanket slipped off her. Her pajamas smelled, but at least she'd been wearing them. What if she'd been naked when he kidnapped her? And what about her expensive, carefully installed nerve gas? This was the second time it had been disabled. Apparently all of underground New York had become security expects.

"I need to go to the bathroom."

"Yes. Just a minute." He wheeled her to another door, pushed the whole chair in, and closed the door.

Cursing, Dee stood up, still bound at wrists and ankles. She managed to get her pis down and everything accomplished, after which there was no choice except to kick at the door.

"It's less stuffy on deck." Victor said cheerfully. Dee scowled at him.

It was less stuffy on deck. Also painfully bright. Sunlight glared off a blue ocean. If there hadn't been a breeze, the heat would have been unbearable. Dee said, "I can't stay out here long. I assume that you have on sunblock."

"So do you. Put on before you woke up. Anyway, we're almost there."

Where? Nothing but water in every direction. Dee folded her arms and said nothing. She wasn't going to cooperate in his elaborate games. If he killed her, he killed her.

She knew she wasn't really indifferent to death.

No one else appeared on this section of deck. Nor were the abundant plants that Perri had described anywhere in evidence. Maybe Victor thought that Dee, too, would steal one.

The ship moved over the ocean, although without reference points Dee had no idea how fast it was traveling. After about twenty minutes, Victor, who'd been lounging at the railing, straightened. "There. Four o'clock."

At first Dee saw nothing. Then she did. The sea was changing color, from blue to a dense, oily black. She said, "An oil spill?"

"I wish."

They drew closer. The blackness grew, until Dee could see it was actually a deep purple. It seemed to extend to the horizon. The ship moved a short

way into the purple and stopped.

Victor lowered a grapple-looking thing over the side. "We can't go in any farther without risk to the screws. But aerial surveillance shows that the bloom already covers sixty thousand square miles. Do you have any idea how big that is, Dee? Half the size of New Mexico. Here, look."

He pulled up the grappler and held it toward her. It dripped what looked

to Dee like seaweed; she was no marine expert.

"It's not ordinary seaweed," Victor said. "It's genemod. Made from altered bacteria. It replicates at ideal bacterial rate, which is to say it doubles every twenty minutes. It has no natural enemies. Nothing eats it. But it blocks sunlight almost totally, and so everything underneath it dies. Do you understand about the food chain, Dee? Do you know what happens if the oceans die?"

"Who made it?"

"Unknown. Best guess is that it was an accident, a mistake. It might have been designed to blanket Third World estuary breeding grounds of malariacarrying mosquitoes. Or not. Anyway, it's out." Victor studied the dripping purple mass and Dee studied Victor. His expression was sad and thoughtful, not at all what she'd expected. How good an actor was he?

She said, "Did you put a genemod plant in my apartment to kill me?"
"No."

"Do you know who did?"

"No But I can guess."

"Who?"

He laid the seaweed on the deck. "What would have happened if that gen-

emod plant had succeeded in killing you, Dee?"

She snapped, "Don't play games with me. If it had killed me, I'd be dead." "Right. Then what? Eventually somebody would have broken into your apartment, if only because your corpse would have begun to smell. A friend, your landlord, a neighbor . . . somebody. They'd have called the cops. The media monitor police reports, and genemod hysteria grows worse all the time. You'd have been a news sensation: "Ex-Cop Murdered In Bed By Killer Engineered Plant!" Full re-creation sims on every channel."

"Mike din't send that plant to kill you in your apartment," Gum had said.

"Tother side did. It was in all the newspapers. You was dead."

Victor pulled a vial from his pocket. The publicity would have aided antigenemod funding as well as anti-genemod feeling. It could have been GMFA supporters, it could have been one of the more fanatic of those activist groups you've gotten so fond of, it could have been a corporation that gains from public hysteria by keeping genemod products illegal.

"The government wouldn't-

"I don't think so, either. Watch, Dee." Victor unstoppered the vial and

poured it over the purple seaweed on the deck.

"I don't see anything." She was still shaken over Victor's casual list of people who might have murdered her.
"Wait a bit."

The purple seaweed began to dissolve. Only one corner of the mass, and

then the reaction stopped.

"It's a genemod bacteria," Victor said. "It eats the bloom. Unfortunately, the toxins emitted by the dying bloom cells kill the eaters. But it's a start. Now that we have the right organism, we can go on tailoring it until it can successfully eliminate the entire bloom."

Dee stared at the seaweed. "And you created that? Here?"

"Yes. We did. Because we're not allowed to create it onshore."

"Victor, that doesn't make sense. Something like this, that could help clean up the ocean."

"And that will in turn replicate and, maybe, create its own crisis. Who knows the effect of releasing this unknown bacteria into the sea? That's what the activists say, and they're right. Only I happen to think that once

the pomegranate seeds are eaten, the only cure is more genetically engineered pomegranate seeds."

"What? Pomegranates"?"

"Forget it. The point is, this is vital work that can't go forward if I, and people like me, have to spend half our time evading tracking by people like you. And like the FBI, of course."

She shifted in her wheelchair. The deadly sunlight was growing hotter. Victor noticed and took the handles of her chair, pushing it along the deck. "But, Victor, even if the United States won't or can't let you do this genemod

work, then surely other countries-the oceans affect everybody!"

work, their surely other countries—the oceans anete everybody.

"True. And so does international trade. The Keller Pact forbids any trade with any country trafficking in genetically modified organisms... remember? A very popular piece of legislation in an election year. Even so, we go some surreptitious funding from a few foreign companies. Not much."

"But it isn't going to stop you."

"I can't let it stop me. Here you are."

They'd reached a section of deck with a remote boat winched up level with the railing. Victor dumped Dee into the tiny boat and pressed a button. The boat began to lower.

"Wait!" Dee called, panicked. "I can't take that much sunlight all the way

back-the ultraviolet-"

"Yes, you can," Victor called down over the railing. "Your sunblock is genetically engineered. Good-bye, Demetria Stavros. Stop destroying the abundance that mankind creates in its new gardens and fields."

The boat detached itself from the winch, turned itself around, and took off. On this flat sea Dee wasn't sick. She noted the position of the sun; with that and the time elapsed before landing, maybe she could estimate where the ship had been. Although by that time, it would have already moved.

The involuntary boat ride was a long one. Dee had plenty of time to

think.

When she entered the Cotsworth visitors' room, Eliot was already seated with Perri.

Dee scowled; this was supposed to be her time with her sister, not that self-righteous prick Eliot's. But then Dee looked again at Perri. Still thin, still sunken-eyed, but now Perri's amazing blue-green eyes glowed. Something had happened.

"Dee!" Perri said from her side of the table. "Eliot and I are engaged!"

Dee froze.

"Aren't you going to congratulate us?" Eliot said. She recognized the battle call in his voice.

"On what? Another screw-up for Perri, this time dragging you along with it? Or are you the one leading? You two can never make it work, Eliot, and you at least should have the experience and intelligence to know that."

"And why can't we make it?" Eliot asked in his attorney voice. Calm. Seeking information. Deceptive.

"You're too different! God, you're an upcoming defense lawyer and Perri

"A criminal?" Eliot said. "A screw-up? That's what you just called her. Your own sister. What are you afraid of, Dee?"

"'Afraid' my ass! Don't try any lawyer rhetoric on me!"

"You are afraid. You're terrified. You think you'll lose her, and then whose

life will you periodically and heroically rescue from ruin to justify your own life?"

"You don't know anything about-"

"I know you've done it to Perri all her life."

"You think you-"

"Stop!" Perri shouted, loud enough that nearby inmates and their visitors stopped talking and turned to stare. The guard started toward them. "Stop," Perri repeated, more calmly. "Dee, this isn't your decision. It's

mine. Eliot, be quiet. I can justify my own decisions to my sister."

The guard said, "Problem here, counselor?"

"No," Eliot said. "Thank you."

Perri said, "Dee, I wrote you something. Take it. And I'm going to marry Eliot." She held out a small, tightly folded piece of paper toward Dee. On her left hand sparkled a diamond ring.

"Don't tell me I can't wear the ring in here without somebody stealing it." Perri said, "I know that. Eliot will take it with him. But in another three months I'll be out, if I keep my nose clean. I can last that long, I can do this, Dee."

But I can't, Dee thought, and was suddenly afraid to know what she

meant. She turned away. "I'm going, Perri. I'll see you next time." "All right," Perri said softly. Not panicking at Dee's anger, not pleading

with her to stay. Not needing her.

Dee passed through the tedious series of prison gates, checkpoints, locked areas. Outside, she walked toward the train. The air wasn't too bad today, but it was very hot. She thought of Victor, out on the open sea, working to engineer an organism to stop the death of the oceans. To bring more changes, but different ones, known in purpose but not in consequence. How long would it take? A hunnert years, Gum had rambled, But even Dee, no scientist, knew that a hundred years would be far too long.

She unfolded Perri's note. To Dee's surprise, it was a poem:

Another love. I am weary of The starts of things. Too many springs. Too little winter make a bitter Everlasting vellow-green. Stop. Enough. Let harvest come.

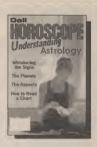
She hadn't even known that Perri wrote poetry.

Waiting for the train. Dee put her hands over her face. She didn't know who was right. Victor, changing whole ecologies like some sort of god. Paula's friends, preserving through destruction. The FBI, blindly enforcing a popular, vindictive law. Which one was bitter spring, which one healing winter? Dee couldn't tell. No more than she could tell if Eliot's terrible accusations about her were true. When was love actually destruction? Could he be so sure that his love for Perri was not?

There was a raid tonight, a hit on a farm in Pennsylvania that engineered biomodified trees to increase photosynthesis capacity. Some of the trees, Dee's group leader had said, incorporated human genes as well as plant genes. Dee didn't know if that was true, either. She knew only one thing for sure

She wasn't going on the raid. Not tonight, not ever. Let harvest come. O

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MONSTER STORY

Kage Baker

Kage Baker, author of the unofficial history of Dr. Zeus Incorporated, resides in downtown Pismo Beach, where she is currently taking notes for a novella set on Mars.

hen Alec Checkerfield was ten, he was Sorted.

The official name for it was Pre-Societal Vocational Appraisal, but what it amounted to was that Alec, with every other ten-year-old child in England, was examined to determine how he'd best fit into Society. Sorting had been going on for nearly a century now, and everyone agreed it worked much better than the old haphazard way of choosing careers.

"It's nothing to be worried about," Lewin assured him, pacing back and forth at the end of the long polished table. "You're such a bright boy, Alec,

you're sure to do well."

Alec sat at the other end of the table and wondered why Lewin was sweating. He could tell Lewin was sweating from all the way across the room, which was one of the reasons Lewin was sweating.

"Is it just a test like we have at St. Stephen's?" Alec asked.

"Not exactly," said Lewin.

Lewin was Alec's butler. Alec lived in a mansion in London with his butler and Mrs. Lewin, his cook. Alec's daddy was off on a yacht in the Caribbean and Alec's mummy was staying with friends somewhere. Alec hadn't seen either of them since he was four.

"Then how is it different?"

Lewin gave up on class distinction and paced down to Alec's end of the room, where he pulled out a chair and sat with his elbows on the table. "It's like this, son. The PSVA isn't a test to see how much you know; it's to see what kind of person you are. That way they'll know what sort of job to put you in when you grow up, and just how to train you for it when you leave primary school."

"But I already know what I'm going to be when I grow up," said Alec with a sigh. He was sighing because he was going to have to be the seventh earl of Finsbury and attend a Circle of Thirty, when what he really wanted to be

was a pirate.

"Well, yeh, but they have to go through the motions, don't they?" said

Lewin, leaning forward confidentially, "You'll be Sorted right out in public with all the other little kids. Admins like you and Consumers alike, so it looks like everybody gets a fair chance. And it is mostly fair. Every year there's a couple Consumer boys and girls score so high they get to join a Circle. And there's usually an Admin kid who doesn't make the grade."

"What happens then?"

"Nothing bad," Lewin assured him quickly, "He'll get trained for a nice low-stress job somewhere and never have to worry about much. But that won't happen to you, son. You'll go right on into your Circle because of your dad being who he is. And you'll like it in Circle. You'll get to meet other

Alec thought that might be fun. He had never met any children.

"Will there be other kids when we go there tomorrow?" he asked.

Lewin nodded. "Which is why," he said, drawing an envelope from an inner pocket, "you'll need to take this." He opened it and shook out a bright blue capsule. "Ministry sends 'em out free. Jolly little pill, see? It's to fight off any germs you might pick up from anybody. Kids used to have to get stuck with needles to keep them well. Aren't you lucky you don't? But you're to take that after supper tonight."

"Okay," Alec picked it up and dropped it in his blazer pocket.

"Good lad." Lewin shifted uneasily in his seat and cleared his throat. "You'll pass with flying colors, son, I know, but . . . vou want to make a good impression."

"Because first impressions are very important," Alec agreed, echoing the

Social Interaction Program he'd been given.

"Yeh. So we aren't going to talk about, er, pirates or anything, are we, son?"

"Nope," said Alec solemnly.

"And we don't want to show off how smart we are, eh? No talk about what you can do with your little tool kit. Not a good idea to let people know you're a bit different."

"Oh, no," Alec agreed. "Because that would make the other children feel had about themselves."

"Just so," said Lewin, feeling relieved. "You'll make your father proud, son. Time for school, now!"

"Yes, sir," said Alec, and sliding from his chair he ran upstairs to his schoolroom. He was eager to make the sixth earl proud of him; he thought that if he did, perhaps his dad might come home some day. Perhaps he might even take Alec back to see with him, and things might be the way they had used to before the divorce.

He knew it wasn't actually his fault his mummy hadn't wanted children. but she had gone away all the same; so that was another reason he must be

good and get high marks in school.

But not too high.

Alec entered his schoolroom, sat down at the console and logged on to St. Stephen's Primary. The surveillance cameras in the upper corners of the room followed him. The nearest one telescoped outward suddenly and sent forth a scan. Meanwhile, Alec watched the icon of the frowning headmaster appear on his console's screen. He picked up the reader and passed it over the pattern of stripes in his school tie, wherein was encoded his identification. The frowning headmaster changed to a smiling one, and Alec was admitted to morning lessons.

Monster Story

Before he could begin, however, a gravelly voice spoke out of the cabinet to his left.

"Bloody hell, boy, what's that in yer jacket?"

As Alec turned from the console, a cone of light shot forth from the Maldecena projector on top of the cabinet. There was a flicker of code and then the form of a man materialized. He was big, with a wild black beard and a fierce and clever face. He wore a cost of scarlet broadcloth. He wore a cocked hat.

He wasn't supposed to look like that. He had been supposed to look like a jolly old sea captain in a yachting cap, harmless and cheery, in keeping with the Pembroke Playfriend he had been programmed to be when he was purchased for Alec. Alec had tinkered with his programming, however, removing his Ethical Governor, and he was far from harmless now.

"It's a pill, so I won't catch germs from the other kids tomorrow." Alec ex-

plained.
"No it ain't! That damned thing's got circuitry in it!"

"No it ain't! That damned thing's got circuitry in it!"

"It has?" Alec slipped the capsule out of his pocket and looked at it curi-

ously.

"Get the tools out, boy," the captain snarled. "We'd best have a look at it."

"But it's classtime."

"Bugger classtime! Send 2-D Alec instead this morning," the captain told him. Alec grinned and, taking the buttonball, ordered up the two-dimensional Alec program he had designed to answer questions for him when he needed to be somewhere other than St. Stephen's.

"Aye aye, Captain sir," he said, hopping back from the console and going to his work table. He pulled out his chair and sat down, taking from a pocket his small case of terribly useful tools. The captain hauled an adult-sized chair from cyberspace and set it beside the little table, where he bent down awkwardly to glare at the blue capsule.

After scanning it intently a moment, he swore for forty-five seconds. Alec listened happily. He had learned a lot of interesting words from the captain.

listened happily. He had learned a lot of interesting words from the captain. "Germs, my arse," said the captain. "There's a monitor in the little bastard! And I know why, by thunder! Old Lewin said you was to take this afore

bedtime, I'll wager?

"Hmph. What he don't know is, it's part of the goddam PSVA." The captain stroked his beard, considering the capsule balefully. "Once that thing's inside you, it'll transmit yer reactions to the questions themselves. The Education Committee'll get yer pulse, blood pressure, respiration, reaction times that whole lot. Like you was hooked up to one of them old lie detectors."

"But I'm not going to tell any lies," said Alec.

"That ain't the point, son! Didn't Lewin explain about what this Sorting s for?"

Alec nodded. "It's to see what kind of person I am."

"And that's just what we don't want 'em to see, matey!"
"Oh," said Alec resignedly. "Because I'm different, right?"

Alec did not know how he was different from other people. He had drawn the conclusion that he was simply very smart, which was why he was able to do things like look at a tree and immediately say how many leaves were on it, or decrypt the site defense of a Pembroke Playfriend so it could be reprogrammed to his liking.

Only the captain knew the truth about Alec, and only some of the truth at that.

"Bloody busybodies," the captain growled. "Wouldn't they just love to get their hooks into my boy? But we'll broadside 'em, Alec! We'll rig their little spy to tell 'em just what we want 'em to know, eh? Open it up, matey, and let's have a look."

"Okay!" Alec took out his jeweler's loupe, which had an elastic band to go around his head so he could wear it like an eyepatch. He slid it on and

peered at the capsule, turning it this way and that

"It unscrews here. Ooh, look." With a twist of his fingers he had opened the capsule and spilled its contents out on a dish: a tiny component of some kind and a quarter-teaspoon of yellow powder. "There's the spy. What's the yellow stuff?"

"That'll be the real medicine, I reckon," said the captain. "Set to leak out of that little pinprick hole. Sweep it off on the carpet! You ain't taking none of

that neither"

"But I don't want to catch germs," protested Alec, drawing out tweezers and the other tools he would need.

"You won't catch no bloody germs," muttered the captain. Alec's brain wasn't the only thing that was different about him. "Never mind it, son. We'll need the extra room in the capsule, anyhow, to clamp on a RAT node what'll feed it false data."

"Yo ho ho!" Alec cried gleefully, pulling out a little case of node components. He set about connecting one to the spy. The captain watched him.

"See, it ain't enough to have the right answers—though you will have, my lad, because I broke into the Ministry of Higher Education's database and or 'em last week. You'll be iudged on the way you answer too. d'vŝee?"

"I'm not sure."

"Take the tenth question, goes like this," (the captain made a throat-clearing noise and pursed up his mouth in a bureaucratic simper) "You be having a lovely day at the jolly seaside. A lady walks past and the top half of her bloody bathing suit falls off. Do you (A) fetch it and give it back to her like a good lad, (B) just sit and look at her boobies, or (C) look the other way and pretend nothing ain't happened?"

"Oh." Alec looked up from the components, going a little glazed-eyed as he imagined the scene. "Erm... I guess, A, fetch it for her, because that'd be po-

lite.

"A, says you? Haar! Correct answerd be C, matey. Looking the other way's what all morally correct folks does," the captain sneered. "Fetching it for her would be a insult, "cos she'd be perfectly able to get it herself, and besides, when you handed it back you'd still get yerself a peek at her boobies, wouldn't you?"

"Yes," Alec admitted. "But you told me it was okay to think about ladies'

boobies."

"Well, so it is, son, but you can't say so."

"But I wouldn't be saying so."

"But with that there spy inside you, they'd be able to tell you was thinking about 'em, see?" the captain explained. "By how long you took to answer the question and what yer heartbeat did and whether you was blushing and so on."

"Oh." Alec scowled. He looked down at the components and worked away in silence a moment before inquiring: "What would they do if you answered R?"

"They'd fix on you with a spyglass, lad, certain sure. And if you answered

the rest of the questions like that, you'd scuttle yerself, because they'd stamp Potential Sociopath on yer file. I reckon you can guess what'd happen

"I wouldn't get to join a Circle of Thirty?"

"Hell no," said the captain somberly. "And you'd have to go to sessions with one of them psychiatric Al units what's got no sense of humor, for months likely, and the end of it all'd be you'd spend the rest of yer life wearing a monitor and inputting data in a basement office somewhere. That's if you was lucky! If the test scores was bad enough, they might just ship you off to Hospital."

Alec shivered. Hospital was where bad people were sent. Even children were sent there, if they were bad; and it was supposed to be very hard to get

out of Hospital, once you'd got in.

"But that ain't happening to my little Alec," said the captain comfortingly.
"Because we'll *cheat* the sons of bitches, won't we?"
"Ave ave, sir" asid Alec, "There! All hooked up. Now what'll we feed it?"

The captain grinned wickedly, and his eyes, which were the changeable

color of the sea, went a dangerous and shifting green.

"Prepare to input code, son. On my mark, as follows..." and he gave Alec a elighty code that would convince the tiny spy that Alec's reactions to the Sorting would be those of a bright (but not too bright) socially well-adjusted human child, fit in every way to join the ruling classes. Alec chortled and input as he was bid, wondering what it would be like to meet other children.

Next morning, Alec got to see something that very seldom happened nowadays: dense traffic, from the sea of floating agars that thronged around the Ministry of Education and jockeyed for space at the mounting blocks.

There were shiny black limos with house creats on the doors, just like his, and Lewin explained that those belonged to good Admin families like Alec's. There were sporty agears in bright colors, and those belonged (so Lewin explained, with a slight snift) to Admin families who had let the side down and failed to live up to their societal obligations. There were black limos without creats, and those belonged to (sniff) climbers who thought they could buy their way into Circles.

There were also big public transports, crowding everyone as they bobbed and bounded up to the mounting blocks, and arriving on those were the

Consumer classes.

All the traffic was exciting, though Alec didn't like the way it smelled very much What he found far more exciting was the slow parade of people making their way down the steps of the mounting blocks and into the Ministry building. He had never seen so many children in his life! He counted all of thirty as his chauffeur edged closer to the block, all waiting for their turn to get out.

He'd seen children from a distance, when he'd been taken on outings to museums or parks, but only from a distance: little figures being pulled along by parents or nannies, as he had been, muffled in coats against the cold, protected by umbrellas from the rain or the sun. Sometimes even their faces were invisible, hidden behind anti-pathogen masks or masks designed to filter out pollen and particulate matter.

But, now! These were children ready, as Alec was more than ready, to make their first official public appearance in the big world. Boys and girls

each in the uniforms of their own primary schools, wearing ties of different stripes and colors, nervous little faces bared to the cold air and light of day. Alec wondered why they all looked so scared. He felt sad for them, especially when he remembered that they all had transmitters in their tummies. telling the Education Committee how scared they were.

At least they didn't know they were carrying transmitters. Alec thought smugly of his, which was broadcasting that he was a healthy, well-adjusted boy. He wasn't scared. Though somebody in the car was scared. . . . Alec sniffed the air and turned curiously to Lewin, who was staring out the win-

dow with a worried face. "What's the matter, Lewin?"

Lewin blinked at the line of children, each child with a black-coated adult. "Those can't be ten-year-olds," he murmured.

"Yes, they are," said Alec in surprise. "They have to be ten. Remember? They're all here for the test, too."

"That's not what I meant," said Lewin, wiping sweat from his face with a tissue. "They're tiny."

Alec puzzled over that, because the other children did not look especially small to him, in fact, they were all pretty much the same exact size; but when at last his turn came, and he and Lewin stepped from the gently rocking car onto the block, he realized what was wrong. He towered over the other children, head and shoulders.

"Hell." Lewin said softly

Alec felt his mouth go dry. He jammed his hands in his pockets to keep from grabbing at Lewin's coat, and was very glad the spy transmitter could only broadcast that he, Alec Checkerfield, was cool, calm, and collected, But first one and then another grownup turned to stare at him, where he stood on the block, and now some of the children were staring too, and pointing, and he heard the whispers beginning.

"What's wrong with that child?"

"... fourteen at least!"

"...can't see how his parents were allowed ..."

... genetics in these old families ..."

"Mummy, why's he like that?"

"Never you mind," grunted Lewin. "Come on, son."

Alec held his head up and marched down the stairs. He pretended they were Wapping Old Stairs. This was Execution Dock and he was a pirate, and they were taking him to be hanged. Step, step, step and they were all staring at him, but he'd show them how brayely he could die! Three times the tide would ebb and flow before the bastards let him go. . . .

Lewin marched beside Alec, meeting the stares with a look of cold challenge. Being nearly a hundred years old, he could remember perfectly well when the occasional tall kid in a class had been nothing to make a fuss over. That had been before the pandemic in Æ77, of course, and then the really bad outbreak in '91. Maybe the alarmists were right when they'd said the gene pool was shrinking.... At least Alec seemed to be taking it well. He had gone quite pale, but his

face was blank and serene, almost rapturous as he stretched out his arms

for the guard at the door to run the sensor wand over him.

It gave a tiny beep and Lewin panicked, thinking Alec might have brought one of his odd little toys with him; but the guard didn't react, merely waved Alec through, and Lewin realized that the wand was beeping like

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that for each child. He realized it must be the all-clear signal and relaxed, but his nerves had been so jangled that when he heard someone sniggering, "You don't suppose that dried-up old prole is his father, do you?" he turned and snapped:

"My young gentleman is the son of my lord the earl of Finsbury!"

And that shut them up, all right. A beefy mustached somebody went bright red and sidled behind somebody else. Lewin looked down to see if Alec had been upset, but Alec hadn't heard.

... He was mounting the ladder to the gallows now, fantastically brave. and allowing the executioner to put the noose around his neck, and there were lots of ladies weeping for him in the crowd because he was so fearless.

and they all had huge boobies. . . .

"Come on, son," Lewin tapped Alec on the shoulder to guide him into the long line of children shuffling along the corridor, paralleled by parents or guardians. The line was moving quickly, and in a moment they had entered the vast auditorium where the PSVA was to be held. Here, guards separated the two lines: children were sent out on the floor, where the long rows of test consoles waited, and adults were directed up into a gallery of seats overlooking the hall.

Lewin clambered up the stairs and took his seat, peering down at the floor. He watched as Alec, looming above the other kids, edged sidelong into his chair and sat looking around with a stunned expression. One hundred

sixty-three children, and more coming in all the time.

And here came a little boy making his way through the rows, trying to get to the vacant console next to Alec's. When he saw Alec, however, he stopped in his tracks.

"Don't be scared," Alec told him. "I'm just big."

The boy bit his lip, but started forward again and at last sat down at the console. He was small and thin, with a café au lait complexion and grey-blue eyes. Alec observed him with great interest.

"Hello. My name is Alec Checkerfield. What's your name?"

"F-Frankie Chatterton," said the other boy, looking terrified. "That's my ddad and mummy up there," he added, pointing to the gallery. Alec looked up at the gallery, where there were precisely two hundred twelve grownups at that moment, and spotted a very dark man with a big black mustache and a lady with a red dot between her eyes. They were both staring at Frankie with expressions of agonized protectiveness. Frankie waved at them and Alec waved too.

"Where's your people?" Frankie inquired.

"Oh, somewhere," said Alec airily, gesturing at the gallery, "You know." "Are you w-worried?"

"Nope." "I'm really wuh-worried," said Frankie. "This is very important, you know." "It'll be a piece of cake, yeah?" Alec told him. Frankie wrinkled his brow as he pondered that. Trying to think of something to put him at his ease,

Alec said: "Those are cool shoes."

They were black and shiny, made of patent leather, and no other child in the room wore anything like them. Frankie looked down proudly, "They have style," he said. "Dad didn't w-want me to wear them, but I stopped breathing until Mummy said he had to let me." He reached into his pocket and drew out a tiny silver pin, which he fixed in his tie with great care.

"What's that?"

"It's a good-luck token," Frankie replied. Alec looked at it closely: a little bat, with pinpoint red stones for eyes.

"Wow," said Alec, because he couldn't think of anything else to say. Frankie lowered his voice and explained.

"I like monster stories, see."

"Oh!" said Alec, delighted. He looked around furtively. "I like pirates," he

whispered.

"Wow, that's really bad!" said Frankie, grinning. But in the next moment his smile fled, as the first of the Test Administrators ascended the high platform where the podium was. He went pale and cringed down in his seat, whimpering "Oh. no! Not yet, not yet, please. I'm not rready."

"It's okay! See the clock? We're not supposed to start for another five min-

utes," Alec pointed out. "What are you scared of?"

"I'm scared I'll f-fail the test," Frankie moaned, clutching the desk to steady himself

"Why should you fail?" Alec asked. "You aren't dumb. I mean, you don't

talk like you are."

"But what if I don't g-get into Circle?" cried Frankie. "You don't understand. Everybody's been saving I'd never get into Circle since I was d-diag-

nosed."
"Diagnosed?" Alec knit his brows. "What's that mean?"

Frankie looked at him as though he were mad. "You know," he said.

"When they take you to the d-doctor and he diagnoses you as an Eccentrie" "Oh" "Alec had never been to a doctor in his life, because he had never been sick. All his annual medical examinations had been done long-distance, with a scanner, and the captain had carefully shown him how to cancel the readings and input different ones so as not to draw unwanted attention to himself, because doctors were a lot of meddling sons of whores. He pretended to understand now. "Oh! Right. Well, don't feel bad. If you don't get into Circle, you'll get trained for a nice low-stress job somewhere, and you'll never have to worry about much."

"But my dad and mum," said Frankie, biting his nails. "It would k-kill them! They've slaved for me and sacrificed for me, and I'm their only son. I

must succeed. I have a responsibility not to disappoint them!"

Alec, who knew what it was to disappoint one's dad and mum, winced. He

leaned close to Frankie and spoke in an undertone.

"Listen. You want the answers? It's an easy pattern. It's all Cs until question 18, then all Fs until question 30, then straight Ds the rest of the way until last question, and that's A."

"What?" Frankie stared at him, confused. Alec looked into Frankie's eyes, holding his gaze, and made his voice as soothing as he could.

"C to 18, F to 30, D to the end, then A," he repeated. "See?"

"C to 18, F to 30, D to the end, A," Frankie echoed in bewilderment.

"What's that thing you're doing with your eyes?"

"Nothing," said Alec, leaning back hastily.

"C to 18, F to 30, D to end, A. Yes, you did! They're all-"

"Don't be scared! I just—"

At that moment, the first Test Administrator rapped sharply on the podium, and Frankie jumped in his seat as though he'd been struck. Silence fell quickly in the hall, as the last of the adults and children found their places. "Good afternoon," said the Administrator pleasantly. There was a vast

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mumbling response from the audience. He smiled out at them all and, from the big framed picture above his head, Queen Mary's vague pretty face welcomed them too. Alec pretended to do the stiff little wrist-only Royal Wave, trying to make Frankie laugh. Frankie gave a tiny smile with teeth and riveted his glance on the Administrator.

"How very glad I am to see you here today" said the Administrator. "You future citizens of a great nation! With the exception of seventeen children whose parents refused the Appraisal for political reasons," and he chuckled as though the Neopunks were harmless oddballs, "every ten-year-old in England is assembled under this roof, Girls and boys, I am honored to meet

you all."

Alec looked around, awed. Two hundred seventy-three children! And it was clear that the vast hall had been built for even more; plenty of consoles sat vacant. The Administrator continued,

"Some of you may be a little nervous. Some of you may be under the im-

pression that this is a contest. But I want to assure each one of you may be under the impression that this is a contest. But I want to assure each one of you, as well as your parents and guardians, that every child in this room is a winner to-

day.

"It wasn't always so. Why, once upon a time, only the children of privilege were given this chancel Today, we're all equals. There will be no special tests given privately to children whose mums and dads are a bit better off than others. No private tutors. No coaches. Here, in public, each child of every family, regardless of class, will be tested where all can see. The results of the Appraisal will be announced before everyone, today. This will prove that not only are we an egalitarian! so cojety, we can be seen to be egalitarian!"

He paused, with an air of triumph, and there was scattered applause. He

cleared his throat and leaned forward, continuing:

"And today, in this democratic process, we will select those whose natural talents predetermine them to lead the nation of tomorrow. Yet, all will play their part in running the great machine of state. Each boy and girl has a duty, and all are of equal importance. It remains only to properly assign each task to the child best suited for it.

"What is required of a good citizen? What has been required by all nations, in every era. Obedience to law social awareness, and social conformity..."

Especially conformity, thought Lewin irritably. He looked down on the rows of little faces, different colored faces to be sure but otherwise as identical as so many young blobs of pudding, vanilla and chocolate and coffee and strawberry. Except for Alec, of course, fidgeting in his seat as he listened to the Administrator.

It wasn't simply that the boy was tall for his age. It wasn't simply that his features were a bit unusual (though now that he was growing up it was more painfully evident, as his strange face lengthened and the broad high cheekbones rose like cliffs under Alec's pale eyes). Alec would undoubtedly have to endure being called things like Horseface and Scarecrow once he'd got out in the world; but nobody goes to Hospital for a nickname. Alec's natural talents, on the other hand...

Not that Lewin was exactly sure what Alec's natural talents were, or if in

fact they were natural at all.

Lewin gritted his teeth now, remembering life as it had been eleven years ago. No worries then, other than seeing to it that the sixth earl didn't get falling-down drunk in public.

Roger Checkerfield had been the sweetest, gentlest upper-class twit it

had ever been Lewin's pleasure to serve. Nominally he was a junior executive with some big multinational firm, but as far as Lewin knew Roger drain his paycheck simply for loafing around from island to island on his yacht. The life had seemed to suit Lady Finsbury too, though she had ten times

Roger's brainpower and was coolly beautiful besides.

Then the call had come, one quiet afternoon when Lewin had been cleaning up the debris of a New Year's party that had lasted most of a week. Private call for Roger from London, urgent business; Roger had staggered from his deck chair, taken the call in his cabin and come out fifteen minutes later white as a sheet. He'd gone straight to the bar and poured himself a stiff drink. After he'd gulped it down like water he'd ordered a change of course, without exolanation.

Then he'd gone in to see Lady Finsbury. There had been a hissed quarrel they'd all tried not to hear, though Roger had raised his voice from time to them in a pleading manner. The end of it was that Lady Finsbury had locked

herself in her cabin and, in a way, never come out again.

That night late they'd lain off Cromwell Cay, and Lewin had not asked what their business was there; but he had seen the red light blinking on the flat sand spit, suggestive of a waiting helicraft. Roger had taken the launch and gone ashore alone, and when he returned had handed up the pretty black girl, Sarah, and the little blanketed bundle she'd brought with her. The bundle had been Alec.

In addition to Alec, she'd brought paperwork Lewin and the rest of the crew had all had to sign, attesting that tiny Alec William St. James Thorne Checkerfield was the earl and Lady Finsbury's son, born right there on the

yacht. In return they all got generous annuities.

But other than holding Alec for the obligatory birth announcement holo,

Lady Finsbury had refused ever to touch the child.

After that, Roger had begun drinking in the mornings, drinking all day.

and Lady Finsbury had opted out of the marriage when Alec was four. Roger had taken Alec to the London townhouse, set up a household with servants, and managed to stay sober for a week before he'd quietly vanished over the horizon and never come back. Not a word of explanation, other than occasional incoherent and remorseful audiomail hinting that Alec was different, somehow, and nobody was to know.

Different hou, dann it? That the boy was a bloody little genius with numbers, that he was able to make unauthorized modifications to supposedly childproof things (and what a lot of Roger's money it had taken to hush that up!), that he was able to program all the household systems by himself including the security protocols—none of that need necessarily land a child in

Hospital. It could be explained away as a freak of precocity.

But if Alec were some other kind of freak . . . Lewin wondered uncomfortably, and not for the first time, just what it was that Roger's big multina-

tional firm did to make its millions.

He became aware that Alec was staring up at him in a woebegone sort of way, as the Administrator's speech came to its interminable summing-up. The minute Lewin made eye contact, however, Alec's eyes brightened, and he winked and mugged and gave Lewin two thumbs up. Lewin smiled back at him.

at hum.
"... there is no inequity. There is no injustice. In an imperfect world, this is perfection: that all should contribute, and all share in the wealth of social order."

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And blah blah, Alec thought to himself, applauding politely with everyone else. The Administrator pressed a control, and in majestic unison, two-hundred seventy-three screens rose from two hundred seventy-three consoles. Two hundred seventy-three ten-year-olds fervently wished they were somewhere else. Frankie Chatterton was crying silently.

"Remember," Alec muttered, "It'll be okay," Frankie gulped and nodded.

Alec turned his eyes to the screen and slipped on the headset.

The screen filled with the image of a meadow of golden daffodils, swaying gently in the wind. Sweet music played, something calming, and a voice cooed: "Good morning, dear. I hope you're feeling well. I'm going to tell you a story now, and the best part of it is: you're the star of the story! You get to make all the decisions. Are you ready? Touch the vellow smiling face if you're ready; touch the blue frowny face if you're not ready."

Alec stuck out his tongue in disgust. What a lot of buggery baby talk! He tapped the yellow face impatiently, and the two faces vanished. They were replaced with a picture, done in the style of a child's drawing, of a row of houses. The nearest door opened and a little stick-figure child emerged.

"This is you! And you're going next door to visit your friend." Alec watched as the stick-figure wobbled over to the next house and knocked on its door. The door opened, and the point of view swooped down to follow the stick figure into the next house. The scene changed to a childish drawing of a front parlor. His stick-figure was looking at another stick-child sitting on a couch. The other stick-child's moony face was smeared with brown, and he was holding a brown lump of something in his hands.

"You go in to see your friend, but, oh, dear! Ugh! You see something nasty! Someone has given your friend sugary sweets! He's eating chocolate. And now, we've come to the part of the story where you decide what happens.

What will you do? You have three choices. Here they are!"

The red letter A appeared on the screen, and the voice said:

"You tell your friend he mustn't eat such nasty things. He promises he won't do it any more. You help him throw away the chocolate and wash his face and hands so nobody will see.

"Or does this happen?" And the blue letter B appeared on the screen. "You think the chocolate looks nice. Your friend offers to give you some of the chocolate if you won't tell anyone what you've seen. You take some of the

chocolate and you and your friend eat sweets and play games. "Or does this happen?" The yellow letter C appeared

"You go outside and see a Public Health Monitor in the street. You tell him that your friend is eating chocolate, and show him where your friend lives

"Think carefully, now. What happens next? A, B, or C? Choose the story you like best. Here are your choices again," and the voice repeated the three possibilities. Alec narrowed his eyes. Bloody telltales! But he tapped on C.

"What a good choice! Are you sure you've chosen C? If you are, tap the yel-

low smiling face and we'll move on to the next part of the story. . . .

Alec tapped the smiling face and moved on, all right, moved on to the deck of his pirate ship, and he was at the wheel steering handily, and the wind filled all her canvas and she raced along over blue water! Smack, up went the white spray! And the air was clean and smelled of the sea. The captain paced the quarterdeck above him with a spyglass, looking out for treasure galleons, and the swivel guns on the rail waited for Alec's expert aim as soon as there was any chance of mayhem. . . .

When the test had ended, everyone filed from the hall into the Ministry's banqueting room beyond, where they were all treated to a luncheon.

Lewin could barely choke it down, he was so nervous. At least Alec didn't seem frightened, he didn't eat much, but sat gazing about him at the other children in frank curiosity. At least, he turned and inquired:

"I didn't know I was so tall. Do you think they mind?"
"Of course they don't mind," said Lewin, opening his pillbox and taking

out an antacid. "I expect they're just not used to you. Perhaps they're a bit scared."
"Of me?" Alec looked impressed. He took a julienned green bean from his

"Of me?" Alec looked impressed. He took a julienned green bean from his plate, stuck one end of it up one nostril and stood at his place. "Excuse me! Somebody got a tissue? I need to blow my nose!"

The children around him screamed with laughter, and some of the adults snorted, but most fixed on him with a glare of outrage. Lewin went pale and sank back, closing his eyes.

"Young man, that is disgusting and an immoral waste of food!" shouted the nearest parent.

"My-young-gentleman-is-the-son-of-my-lord-the-earl-of-Finsbury," Lewin rattled off like a prayer, and it worked again; the angry parents swallowed back venom, the amused parents nodded knowingly at one another.

back venom, the amused parents nodded knowingly at one another.
"I'm very sorry," said Alec contritely, and ate the green bean. The other
children screamed again, and Alec caught the end of one parent's muttered

remark: "... get away with it because he's one of the hereditaries."
"See?" Alec said to Lewin as he sat down again. "Now they won't be scared
of me."

And the other children to either side and across the table did begin to chat with Alec, and the adults stolidly pretended nothing had happened, and Lewin wiped his brow and prayed that this incident wouldn't affect the outcome of the Sorting.

After lunch, they were herded into another vast room, empty with a dais in the center, and everyone was lined up along the walls, all the way around. That morning the children had kept their distance while the adults had grouped together to talk; now that the die had been cast, the children waved and shouted to one another and it was the adults who kept to themselves, eyeing the competition.

"Now we'll see," hissed Lewin, as an Administrator crossed the room and mounted the dais. Alec, distracted from semaphoring at Frankie Chatterton, looked up at him.

"Why are you scared again?"

Lewin just shook his head. The Administrator coughed and hammered on the podium, and a deathly silence fell. This was a different man from the first Administrator. He looked less like a politician and more like a holo announcer.

"Good afternoon, citizens!" he said, and his words echoed in the room. "I hope you all enjoyed your luncheons? Girls and boys, are you ready for the exciting news? Remember, everybody's a winner today! Let's say it all together: Everybody's a winner!"

"EVERYBODY'S A WINNER," groaned the parents, piped the children

obediently.
"That's right! The results are all tallied and the appraisals have been

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made! I know you're all eager to see what part you'll play in the bright future awaiting every one of us, so without further ado—the vocational assignments!"

And he applauded wildly to show they were all supposed to join in, so they all did, and when everyone's hands were tired he cleared his throat again and said loudly:

"Aalwyn, Neil David! Please approach the podium."

Neil David Aalwyn was a very small boy with scraped knees, and his parents flanked him up to the dais, looking edgily from side to side. They had arrived that morning by public transport and their clothes were not elegant, were in fact about five years behind the time in fashion.

"And what does your father do, Neil?" boomed the Administrator. Neil opened his mouth to speak but nothing audible came out, and his father cried hoarsely:

"Farm for Sleaford Council!"

"A farmer's son! That's a noble profession, young Neil. Without the farmers, we'd have nothing to eat, would we? And I'm happy to report that you scored so well, it is the opinion of the Committee that you are fully fit to follow in your father's footsteps!"

There was a breathless pause, and Alec heard a faint muttering from

dark corners of the room. The Administrator added:

"But! With the further recommendation that you be considered for Council membership, thanks to your extraordinarily developed social conscience!"

Neil's parents brightened at that, and there was thunderous applause as they returned to the wall. "Throw 'em a sop," Lewin said under his breath, but Alec heard him and looked up.

"Is Council the same thing as Circle?" he inquired.

"Not exactly. But it's better than he might have done," Lewin replied. "It'll keep his subgroup happy."

Neil Adlwyn was followed by Jason Allanson, who was going to be a clerk just his father, but that was all right because literacy was a fine thing; after him came Camilla Anderson, who had done so well she was going to join the Manchester Circle, as her parents had done ("Big surprise," growled Lewin). Arthur Arundale was going to follow his honored mother and continue the fine family tradition of driving public transports. Kevin Ashby, Elvis Atwood-Crayton, Jane Auden: all winners and all neatly slotted into careers they'd be sure to love, or would at least find reasonably personally fulfilling.

Babock, Baker, Banks, Beames, came and went without surprises, and so did the rest of the Bs until little Edmund Bray, standing at the dais with his parents the third earl of Stockport and Lady Stockport, was informed that he could look forward to a life free from responsibilities and might perhaps pursue a career in the arts.

Lord Stockport went purple in the face, Lewin exhaled, and a buzz of excitement ran through the room. Many of the parents were hugging themselves gleefully; others stood silent and mortified.

"I BEG your pardon?" shouted the third earl.

"What's happened?" demanded Alec. "What's wrong? Didn't he win too?"
"It's just fairness, son," Lewin whispered beside his ear. "Remember how I said there's always one hereditary Admin who gets thrown to the wolves every year, for appearances' sake? Keeps the lower classes happy. Makes

room for somebody else to move up into a Circle and get a nice job, and you can't say that it isn't democratic."

"But what'll happen to him?" asked Alec, staring at Edmund Bray, who was looking on uneasily as his parents held a sizzling sotto-voce conversa-

tion with the Administrator.

"Nothing much. His people have money; he'll live it down. Wouldn't have failed if he hadn't been a little blockhead, anyway," Lewin explained lightheartedly. He was giddy with joy that Alec hadn't been the chosen sacrifice. "Besides, for every one Admin like him that gets what's coming to him. there's ten brilliant Consumer kids who ought to make Circle and get stuck being bank managers instead. No worries, son."

The rest of the Bs were something of an anticlimax, but as they got into C. Alec could feel Lewin tensing up again. Calberry, Carter, Cattley. . . .

"Yo ho, we're on the High C's," Alec whispered to make Lewin smile, forgetting he wasn't supposed to talk about pirates. Lewin just grimaced.

"Francis Mohandas Chatterton!" cried the Administrator, Alec turned in

surprise and applauded as Frankie was pushed up to the dais by his dad and mummy. Behind them, quietly, walked four men in suits.

Lewin put his hand on Alec's shoulder a moment, clenching tight. Nobody in the room made a sound. Alec could hear his own heart beating. The Administrator's voice was just as peppy as ever, seemed loud as a trumpet when he said: "Well, Francis, you're a very lucky boy! The Committee has determined that you're entitled to special counseling! What a happy and carefree life you'll have!"

Alec heard Lewin make a noise as though he'd been punched, Frankie's mum put her hands to her mouth with a little scream, and Frankie's dad

turned and noticed the four men.

"What-what-" he said, still too surprised to be angry. Frankie had begun to cry again, hopelessly,

Alec felt Lewin pull him back and half-turn him, as though he could keep Alec from seeing. "Ah, Christ, they're not going to fight, are they?" Lewin mumbled. "Poor little bastard—"

"I don't understand," said Alec wildly, straining to see, "He didn't fail! Why are they-"

"He's going into Hospital, Alec. Don't look, son, it's rude. Leave them go with some privacy, eh?"

But Alec couldn't look away as Frankie's dad began to struggle, shouting that this was an outrage, that it was racially motivated, that he'd appeal, and the Administrator kept talking cheerily as though he couldn't hear, saying: "Please follow our courtesy escort to the waiting complimentary transport. You'll be whisked away to a lovely holiday at the East Grinstead Facility before beginning your special classes!"

Nobody applauded. Alec felt as though he were going to throw up. Two of the men in suits were dragging Frankie's dad toward the door now, as the other two shepherded Frankie and his mummy after them. The Administrator drew a deep breath and sang out,

"Alec William St. James Thorne Checkerfield!"

Alec seemed frozen in place, until Lewin pushed him forward, Dazed, he

walked out to the dais and looked up into the Administrator's happy face. "Well, Alec, it's a pleasure to meet you! What do your dad and mum do, Alec?"

Alec was tongue-tied. He heard Lewin's voice coming from just behind

him: "My young gentleman's father is the Right Honorable Roger Checker-

field, sixth earl of Finsbury, sir."

"He'll be proud of you for sure, Alec," beamed the Administrator. "You're to be admitted to the London Circle of Thirty! Well done, young Checkerfield! We expect great things of you!"

There was applause. Alec stood there, staring. How could he have passed when Frankie had failed so badly, since they'd both had the right answers?

Then Alec remembered the transmitters.

He felt something swelling in his chest like a balloon. He was drawing breath to shout that it wasn't fair, that it was all a cheat, when he looked up

and saw Lewin's old face shining with relief.

So Alec said nothing, but walked meekly back to his place when the applause had ended. He stood like a stone through the rest of the ceremony, and every time he tried to summon blue water and a tall ship to comfort himself, all he saw was Frankie's dad wrestling with the other men.

Twice more that afternoon, unhappy children and their parents were escorted out the door by the ominous-looking men, and everyone pretended not to notice.

When it was all over at last, Alec walked out with Lewin to the street where the limos were lining up, whooshing and bobbing in the wind. Waiting for his car to pull close, Alec climbed the steps of the mounting block and pretended he was going to the gallows.

... Again, he felt the noose being put around his neck. Perhaps he was a heroic prisoner of war? And the bad guys would execute him, but in this game he had managed to set free all the other prisoners, including the kids in Hospital. With no fear of death, he stepped forward off the ladder and felt the rope draw tight....

"Come on, son." Lewin opened the door for him. "Let's go home."

Alec was silent in the car, until at last looking up to say:

"That wasn't fair! Frankie Chatterton shouldn't have gone into Hospital. He wasn't bad. I talked to him!"

"That's right, he sat beside you, didn't he?" said Lewin. "But there must

have been something wrong with the kid, son, or they wouldn't have sent him off." "He told me he'd been diagnosed Eccentric," said Alec miserably.

"Ohh," said Lewin, and his face cleared, and in his voice was sudden understanding, complete resignation, acceptance. "Oh, well, no wonder, then, Best to get that lot Sorted out early. Shame, but there it is."

That night the captain, patiently monitoring Alec's vital signs, noted that it was past ten and Alec was still awake. He activated the projector and manifested himself beside Alec's bed.

"Now then, matey, it's six bells into the first night watch. Time you was turning in, says I."

"What happens to you in Hospital?" asked Alec, gazing up at the star-patterns on his ceiling.

"Aw, now, nothing too bad. I reckon an ordinary dull kid wouldn't mind it

"What if you weren't dull?" Alec asked. "What if you were smart?"

"Why, they'd give you things to do," the captain explained, pulling a chair

from cyberspace and settling back in it. "More tests, so as to be certain you ain't the sort of boy what likes to set fire to things, or shoot folk, or like that. And if they decided you wasn't, you might get yerself discharged some day.

"Or I'll tell you what else might happen," and he leaned close with a gleam in his eyes, "and this is a secret, matey but it's true all the same: some of the biggest companies in business, all their idea people is compensated Eccentrics. When they wants real talent, they goes snooping around Hospitals for bright boys like yer little friend. See? And they arrange to bail em out, and give 'em contracts." The capitain winked. "So he might wind up with a good job after all!"

"That would be nice," said Alec listlessly. "But it's still sad. Frankie's mum and dad needed him to do well. Nobody needs me to do well, but I got into Circle anyway. It should have happened the other way around. Nobody

would have been hurt if Γd gone into Hospital."

"Belay that talk! What about old Lewin and Mrs. L? They'd miss you if you was taken away, certain sure. And what about me, matey?"

"But you're a machine," said Alec patiently,

"Machines got feelings, son. We're programmed to. Same as you, I reckon." The captain stroked his wild beard, looking shrewdly at Alec. "What's put this notion of surrender into yer head, ch? Who's been feeding my boy a lot of nonsense? Or is it that you just don't want to go into Circle."

"No," Alec said, bewildered, because he'd always looked forward to Circle and suddenly realized that now he hated the idea. "Yes. I don't know. I want

to sail away and be free, Captain!"

"And so we will, lad. Soon's you come of age, hell! We give 'em the slip and we're off to Jamaica and anywheres else you want to go. But until then, we got to play along with the bastards, don't we? So no more talk about going into Hospital."

Alec nodded. After a moment, he said:

"Life isn't fair, is it?"

"Too bloody right it ain't fair!" The captain bared his teeth. "It's a fixed game, Alec, that's what it is for certain. You ain't got a chance unless you cheat!"

"Then somebody ought to make new rules," said Alec sullenly.

"I reckon so, son. But that's more than a old AI and a tired little matey can plot for tonight. Come morning, we'll set a course for a new world, eh? You sleep now."

"Aye aye, sir," said Alec. He turned over and punched his pillow, settling down and closing his eyes. The captain winked out but continued to scan, and the four red camera eyes in the corners of the ceiling watched over Alec

with brooding love.

... Gradually the dim headland came into view, as the fog lifted away. There shining on the hills was the place Alee wanted, where he would make new rules. The west wind freshened. He howled orders from the wheel and his phantom crew mounted into the shrouds, clapping on sail. The breeze caught and flared Alec's black ensign, his death's head banner, and he erinned at the unsuspecting city O





LOBSTERS

on by Mark Evan



lanfred's on the road again, making strangers rich.

It's a hot summer Tuesday and he's standing in the plaza in front of the Centraal Station with his eveballs powered up and the sunlight jangling off the canal, motor scooters and kamikaze cyclists whizzing past and tourists chattering on every side. The square smells of water and dirt and hot metal and the fart-laden exhaust fumes of cold catalytic converters: the bells of trams ding in the background and birds flock overhead. He glances up and grabs a pigeon, crops it and squirts at his website to show he's arrived. The bandwidth is good here, he realizes; and it's not just the bandwidth, it's the whole scene. Amsterdam is making him feel wanted already, even though he's fresh off the train from Schiphol: he's infected with the dynamic optimism of another time zone, another city. If the mood holds, someone out there is going to become very rich indeed.

He wonders who it's going to be.

Manfred sits on a stool out in the car park at the Brouwerii 't IJ, watching the articulated buses go by and drinking a third of a liter of lip-curlingly sour geuze. His channels are jabbering away in a corner of his head-up display, throwing compressed infobursts of filtered press releases at him. They compete for his attention, bickering and rudely waving in front of the scenery. A couple of punks-maybe local, but more likely drifters lured to Amsterdam by the magnetic field of tolerance the Dutch beam across Europe like a pulsar-are laughing and chatting by a couple of battered mopeds in the far corner. A tourist boat putters by in the canal; the sails of the huge windmill overhead cast long cool shadows across the road. The windmill is a machine for lifting water, turning wind power into dry land: trading energy for space, sixteenth-century style. Manfred is waiting for an invite to a party where he's going to meet a man who he can talk to about trading energy for space, twenty-first century style, and forget about his personal problems.

He's ignoring the instant messenger boxes, enjoying some low bandwidth high sensation time with his beer and the pigeons, when a woman walks up

to him and says his name: "Manfred Macx?

He glances up. The courier is an Effective Cyclist, all wind-burned smooth-running muscles clad in a paen to polymer technology; electric blue lycra and wasp-vellow carbonate with a light speckling of anti-collision LEDs and tight-packed air bags. She holds out a box for him. He pauses a moment, struck by the degree to which she resembles Pam, his ex-fiancée.

"I'm Macx," he says, waving the back of his left wrist under her barcode

reader. "Who's it from?"

"FedEx." The voice isn't Pam. She dumps the box in his lap, then she's back over the low wall and onto her bicycle with her phone already chirp-

ing, disappearing in a cloud of spread-spectrum emissions. Manfred turns the box over in his hands: it's a disposable supermarket

phone, paid for in cash: cheap, untraceable and efficient. It can even do conference calls, which makes it the tool of choice for spooks and grifters everywhere.

The box rings. Manfred rips the cover open and pulls out the phone, mild-

ly annoyed. "Yes, who is this?"

The voice at the other end has a heavy Russian accent, almost a parody in this decade of cheap online translation services. "Manfred. Am please to meet you; wish to personalize interface, make friends, no? Have much to offer."

"Who are you?" Manfred repeats suspiciously.

"Am organization formerly known as KGB dot RU."

"I think your translator's broken." He holds the phone to his ear carefully, as if it's made of smoke-thin aerogel, tenuous as the sanity of the being on

the other end of the line.

"Nyet—no, sorry. Am apologize for we not use commercial translation software. Interpreters are ideologically suspect, mostly have capitalist semiotics and pay-per-use APIs. Must implement English more better, yes?"

Manfred drains his beer glass, sets it down, stands up, and begins to walk along the main road, phone glued to the side of his head. He wraps his throat mike around the cheap black plastic casing, pipes the input to a simple listener process. "You taught yourself the language just so you could talk to me?"

"Da, was easy: spawn billion-node neural network and download *Telly-tubbies* and *Sesame Street* at maximum speed. Pardon excuse entropy overlay of bad grammar: am afraid of digital fingerprints steganographically

masked into my-our tutorials."

"Let me get this straight. You're the KGB's core AI, but you're afraid of a copyright infringement lawsuit over your translator semiotics?" Manfred pauses in mid-stride, narrowly avoids being mown down by a GPS-guided roller-blader.

"Am have been badly burned by viral end-user license agreements. Have no desire to experiment with patent shell companies held by Chechen infoterrorists. You are human, you must not worry cereal company repossess your small intestine because digest unlicensed food with it, right? Manfred.

you must help me-we. Am wishing to defect."

Manfred stope dead in the street: "On man, you've got the wrong free enterprise broker here. I don't work for the government. I'm strictly private." A rogue advertisement sneaks through his junkbuster proxy and spama glowing fifties kitsch across his navigation window—which is blinking—for a moment before a phage guns it and spawns a new filter. Manfred leans against a shop front, massaging his forehead and eyeballing a display of antique brass doorknockers. "Have you cleared this with the State Department?"

"Why bother? State Department am enemy of Novy-USSR. State Depart-

ment is not help us."

"Well, if you hadn't given it to them for safe-keeping during the nineties..." Manfred is tapping his left heel on the payement, looking round for a way out of this conversation. A camera winks at him from atop a street light; he waves, wondering idly if it's the KGB or the traffic police. He is waiting for directions to the party, which should arrive within the next half an hour, and this cold war retread is bumming him out. "Look, I don't deal with the G-men. I hate the military industrial complex. They're zero-sum cannibals." A thought occurs to him. "If survival is what you're after, I could post your state vector to Eternity: then nobody could delete you."

"Nyet!" The artificial intelligence sounds as alarmed as it's possible to

sound over a GSM link, "Am not open source!"

We have nothing to talk about, then. Manfred punches the hang-up button and throws the mobile phone out into a canal. It hits the water and there's a pop of deflagrating LiION cells. "Fucking cold war hang-over losers," he swears under his breath, quite angry now. "Fucking capitalist sooks," Russis has been back under the thumb of the apparatchiks for fif-

teen years now, its brief flirtation with anarcho-capitalism replaced by Breahnevite dirigisme, and it's no surprise that the wall's crumbling—but it looks like they haven't learned anything from the collapse of capitalism. They still think in terms of follars and paranoia. Manfred is so angry that he wants to make someone rich, just to thumb his nose at the would-be defector. Seel You get ahead by giving! Get with the program! Only the generation survive! But the KGB won't get the message. He's dealt with old-time commie weak-Al's before, minds raised on Marxist dialectic and Austrian School economics: they're so thoroughly hynotized by the short-term victory of capitalism in the industrial age that they can't surf the new paradigm, look to the longer term.

Manfred walks on, hands in pockets, brooding. He wonders what he's going to patent next.

Manfred has a suite at the Hotel Jan Luyken paid for by a grateful multinational consumer protection group, and an unlimited public transport pass paid for by a Scottish sambapunk band in return for services rendered. He has airline employee's travel rights with six flag carriers despite never having worked for an airline. His bush jacket has sixty four compact supercomputing clusters sewn into it, four per pocket, courtesy of an invisible college that wants to grow up to be the next Media Lab. His dumb clothing comes made to measure from an e-tailor in the Philippines who he's never met. Law firms handle his patent applications on a pro bono hasis, and boy does he patent a lot—although he always signs the rights over to the Free Intellect Foundation, as contributions to their obligation-free infrastructure project.

In IP geek circles, Manfred is legendary; he's the guy who patented the business practice of moving your e-business somewhere with a slack intellectual property regime in order to evade licensing encumbrances. He's the guy who patented using genetic algorithms to patent everything they can permutate from an initial description of a problem domain—not just a better mousetrap, but the set of all possible better mousetraps. Roughly a third of his inventions are legal, a third are illegal, and the remainder are legal but will become illegal as soon as the legislatosaurus wakes up, smells the coffee, and panics. There are patent attorneys in Reno who swear that Manfred Macx is a pseudo, a net alias fronting for a bunch of crazed anonymous hackers armed with the Genetic Algorithm That Ate Calcutta; a kind of Serdar Argic of intellectual property, or maybe another Bourbaki maths borg. There are lawyers in San Diego and Redmond who swear blind that Macx is an economic saboteur bent on wrecking the underpinning of capitalism, and there are communists in Prague who think he's the bastard spawn of Bill Gates by way of the Pope.

Manfred is at the peak of his profession, which is essentially coming up with wacky but workable ideas and giving them to people who will make fortunes with them. He does this for free, gratis. In return, he has virtual immunity from the tyranny of cash; money is a symptom of poverty after

all, and Manfred never has to pay for anything.

There are drawbacks, however. Being a pronoiac meme-broker is a constant burn of future shock—he has to assimilate more than a megabyte of text and several gigs of AV content every day just to stay current. The Internal Revenue Service is investigating him continuously because they don't believe his lifestyle can exist without racketeering. And there exist items that no money can't buy like the respect of his parents. He hasn't spo-

ken to them for three years: his father thinks he's a hippie scrounger and his mother still hasn't forgiven him for dropping out of his down-market Harvard emulation course. His flancée and sometime dominatrix Pamela threw him over six months ago, for reasons he has never been quite clear on. (Ironically, she's a headhunter for the IRS, jetting all over the globe trying to persuade open source entrepreneurs to come home and go commercial for the good of the Treasury department.) To cap it all, the Southern Baptist Conventions have denounced him as a minion of Satan on all their websites. Which would be funny, if it wasn't for the dead kittens one of their followers—he presumes it's one of their followers—beep mailing him.

Manfred drops in at his hotel suite, unpacks his Aineko, plugs in a fresh set of cells to charge, and sticks most of his private keys in the safe. Then he heads straight for the party, which is currently happening at De Wildemann's; it's a twenty minute walk and the only real hazard is dodging the trans that sneak up on him behind the cover of his moving man disolar.

Along the way his glasses bring him up to date on the news. Europe has achieved peaceful political union for the first time ever: they're using this unprecedented state of affairs to harmonize the curvature of bananas. In San Diego, researchers are uploading lobsters into cyberspace, starting with the stomatogastric ganglion, one neuron at a time. They're burning GM coca in Belize and books in Edinburgh. NASA still can't put a man on the moon. Russia has re-elected the communist government with an increased majority in the Duma; meanwhile in China fevered rumors circulate about an imminent re-habilitation, the second coming of Mao, who will save them from the consequences of the Three Corges disaster. In business news, the US government is outraged at the Baby Bills—who have automated their legal processes and are spawning subsidiaries. JPO'ing them, and exchanging title in a bizarre parody of bacterial plasmid exchange, so fast that by the time the injunctions are signed the targets don't exist any more.

Welcome to the twenty-first century.

The permanent floating meatspace party has taken over the back of De Wildemann's, a three hundred year old brown cafe with a beer menu that runs to sixteen pages and wooden walls stained the color of stale beer. The air is thick with the smells of tobacco, brewer's yeast, and melatonin spray-half the dotters are nursing monster jetlag hangovers, and the other half are babbling a eurotrash croole at each other while they work on the hangover. "Man did you see that? He looks like a Stallmanite!" exclaims one whitebread hanger-on who's currently propping up the bar. Manfred slides in next to him, catches the bartender's eye.

"Glass of the berlinnerweise, please," he says.

"You drink that stuff?" asks the hanger-on, curling a hand protectively around his Coke: "man, you don't want to do that! It's full of alcohol!"

Manfred grins at him toothily. "Ya gotta keep your yeast intake up: lots of neurotransmitter precursors, phenylalanine and glutamate."

"But I thought that was a beer you were ordering. . . ."

Manfred's away, one hand resting on the smooth brass pipe that funnels the more popular draught items in from the cask storage in back; one of the hipper floaters has planted a capacitative transfer bug on it, and all the handshake vCard's that have visited the bar in the past three hours requeueing for attention. The air is full of bluetooth as he scrolls through a dizzving mess of vabile kevs.

"Your drink" The harman holds out an improbable-looking goblet full of blue liquid with a cap of melting foam and a felching straw stuck out at some crazy angle. Manfred takes it and heads for the back of the split-level bar, up the steps to a table where some guy with greasy dreadlocks is talking to a suit from Paris. The hanger-on at the bar notices him for the first time staring with suddenly wide eyes: nearly spills his Coke in a mad rush for the door.

Oh shit, thinks Macx, better buy some more server PIPS. He can recognize the signs; he's about to be slashdotted. He gestures at the table: "this one taken?

"Be my guest," says the guy with the dreads. Manfred slides the chair open then realizes that the other guv-immaculate double-breasted suit, sober tie, crew-cut-is a girl. Mr. Dreadlock nods. "You're Macx? I figured it was about time we met.'

"Sure." Manfred holds out a hand and they shake. Manfred realizes the hand belongs to Bob Franklin, a Research Triangle startup monkey with a VC track record, lately moving into micromachining and space technology: he made his first million two decades ago and now he's a specialist in extropian investment fields. Manfred has known Bob for nearly a decade via a closed mailing list. The Suit silently slides a business card across the table; a little red devil brandishes a trident at him, flames jetting up around its feet. He takes the card, raises an evebrow: "Annette Dimarcos? I'm pleased to meet you. Can't say I've ever met anyone from Arianespace marketing before"

She smiles, humorlessly; "that is convenient, all right, I have not the pleasure of meeting the famous venture altruist before." Her accent is noticeably Parisian, a pointed reminder that she's making a concession to him just by talking. Her camera earrings watch him curiously encoding everything for the company channels.

"Yes, well." He nods cautiously, "Bob, I assume you're in on this ball?" Franklin nods; beads clatter. "Yeah, man. Ever since the Teledesic smash

it's been, well, waiting. If you've got something for us, we're game." "Hmm." The Teledesic satellite cluster was killed by cheap balloons and slightly less cheap high-altitude solar-powered drones with spread-spectrum laser relays. "The depression's got to end some time: but," a nod to Annette from Paris, "with all due respect, I don't think the break will involve

one of the existing club carriers."

"Arianespace is forward-looking. We face reality. The launch cartel cannot stand. Bandwidth is not the only market force in space. We must explore new opportunities. I personally have helped us diversify into submarine reactor engineering, microgravity nanotechnology fabrication, and hotel management." Her face is a well-polished mask as she recites the company line: "we are more flexible than the American space industry. . . ."

Manfred shrugs. "That's as may be." He sips his Berlinerweisse slowly as she launches into a long, stilted explanation of how Arianespace is a diversified dot com with orbital aspirations, a full range of merchandising spinoffs, Bond movie sets, and a promising motel chain in French Guyana. Oc-

casionally he nods.

Someone else sidles up to the table; a pudgy guy in an outrageously loud Hawaiian shirt with pens leaking in a breast pocket, and the worst case of ozone-hole burn Manfred's seen in ages. "Hi, Bob," says the new arrival. "How's life?"

"S good." Franklin nodes at Manfred; "Manfred, meet Ivan MacDonald. Ivan, Manfred, Have a seat?" He leans over, "Ivan's a public arts guy, He's heavily into extreme concrete."

"Rubberized concrete," Ivan says, slightly too loudly. "Pink rubberized

concrete."

"Ah!" He's somehow triggered a priority interrupt: Annette from Ariannespace drops out of marketing zombiehood, sits up, and shows signs of possessing a non-corporate identity: "you are he who rubberized the Reichstag, yes? With the supercritical carbon dioxide carrier and the dissolved polymethoxysilanes?" She claps her hands: "wonderful!"

"He rubberized what?" Manfred mutters in Bob's ear.

Franklin shrugs. "Limestone, concrete, he doesn't seem to know the difference, Anyway, Germany doesn't have an independent government any more, so who'd notice?"

"I thought I was thirty seconds ahead of the curve," Manfred complains.

"Buy me another drink?"

"I'm going to rubberize Three Gorges!" Ivan explains loudly.

Just then a bandwidth load as heavy as a pregnant elephant sits down on Manfred's head and sends clumps of humongous pixellation flickering across his sensorium: around the world five million or so geeks are bouncing on his home site, a digital flash crowd alerted by a posting from the other side of the bar. Manfred winces. "I really came here to talk about the economic exploitation of space travel, but I've just been slashdotted. Mind if I just sit and drink until it wears off?"

"Sure, man." Bob waves at the bar. "More of the same all round!" At the next table a person with make-up and long hair who's wearing a dress-Manfred doesn't want to speculate about the gender of these crazy mixedup Euros-is reminiscing about wiring the fleshpots of Tehran for cybersex. Two collegiate-looking dudes are arguing intensely in German: the translation stream in his glasses tell him they're arguing over whether the Turing Test is a Jim Crow law that violates European corpus juris standards on human rights. The beer arrives and Bob slides the wrong one across to Manfred: "here, try this. You'll like it."

"Okay," It's some kind of smoked doppelbock, chock-full of yummy superoxides: just inhaling over it makes Manfred feel like there's a fire alarm in his nose screaming danger, Will Robinson! Cancer! Cancer! "Yeah, right. Did

I say I nearly got mugged on my way here?"

"Mugged? Hey, that's heavy. I thought the police hereabouts had

stopped-did they sell you anything?"

No, but they weren't your usual marketing type. You know anyone who can use a Warpac surplus espionage AI? Recent model, one careful owner, slightly paranoid but basically sound?"

"No. Oh boy! The NSA wouldn't like that."

"What I thought, Poor thing's probably unemployable, anyway." "The space biz."

"Ah, yeah. The space biz. Depressing, isn't it? Hasn't been the same since Rotary Rocket went bust for the second time, And NASA, mustn't forget NASA." "To NASA." Annette grins broadly for her own reasons, raises a glass in

toast. Ivan the extreme concrete geek has an arm round her shoulders; he raises his glass, too. "Lots of launch pads to rubberize!"

"To NASA," Bob echoes, They drink, "Hey, Manfred, To NASA?"

Inhsters

"NASA are idiots. They want to send canned primates to Mars!" Manfred swallows a mouthful of beer, aggressively plonks his glass on the table: "Mars is just dumb mass at the bottom of a gravity well: there isn't even a biosphere there. They should be working on uploading and solving the nanoassembly conformational problem instead. Then we could turn all the available dumb matter into computronium and use it for processing our thoughts. Long term, it's the only way to go. The solar system is a dead loss right now-dumb all over! Just measure the mips per milligram. We need to start with the low-mass bodies, reconfigure them for our own use, Dismantle the moon! Dismantle Mars! Build masses of free-flying nanocomputing processor nodes exchanging data via laser link, each layer running off the waste heat of the next one in. Matrioshka brains, Russian doll Dyson spheres the size of solar systems. Teach dumb matter to do the Turing boogie!"

Bob looks wary, "Sounds kind of long term to me. Just how far ahead do you think?"

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"Very long-term-at least twenty, thirty years. And you can forget governments for this market, Bob, if they can't tax it they won't understand it. But see, there's an angle on the self-replicating robotics market coming up, that's going to set the cheap launch market doubling every fifteen months for the foreseeable future, starting in two years. It's your leg up, and my keystone for the Dyson sphere project. It works like this-"

It's night in Amsterdam, morning in Silicon Valley, Today, fifty thousand human babies are being born around the world. Meanwhile automated factories in Indonesia and Mexico have produced another quarter of a million motherboards with processors rated at more than ten petaflops—about an order of magnitude below the computational capacity of a human brain. Another fourteen months and the larger part of the cumulative conscious processing power of the human species will be arriving in silicon. And the first meat the new AI's get to know will be the uploaded lobsters.

Manfred stumbles back to his hotel, bone-weary and jet-lagged; his glasses are still jerking, slashdotted to hell and back by geeks piggybacking on his call to dismantle the moon. They stutter quiet suggestions at his peripheral vision: fractal cloud-witches ghost across the face of the moon as the last huge Airbuses of the night rumble past overhead, Manfred's skin crawls, grime embedded in his clothing from three days of continuous wear.

Back in his room, Aineko mewls for attention and strops her head against his ankle. He bends down and pets her, sheds clothing and heads for the ensuite bathroom. When he's down to the glasses and nothing more he steps into the shower and dials up a hot steamy spray. The shower tries to strike up a friendly conversation about football but he isn't even awake enough to mess with its silly little associative personalization network. Something that happened earlier in the day is bugging him but he can't quite put his finger on what's wrong.

Toweling himself off, Manfred vawns, Jet lag has finally overtaken him, a velvet hammer-blow between the eves. He reaches for the bottle beside the bed, dry-swallows two melatonin tablets, a capsule full of antioxidants, and a multivitamin bullet: then he lies down on the bed, on his back, legs together, arms slightly spread. The suite lights dim in response to commands from the thousand petaflops of distributed processing power that run the neural networks that interface with his meatbrain through the glasses.

Manfred drops into a deep ocean of unconsciousness populated by gentle

Charles Stross

voices. He isn't aware of it, but he talks in his sleep—disjointed mumblings that would mean little to another human, but everything to the metacortex lurking beyond his glasses. The young posthuman intelligence in whose Cartesian theater he presides sings urgently to him while he slumbers.

Manfred is always at his most vulnerable shortly after waking.

He screams into wakefulness as artificial light floods the room: for a moment he is unsure whether he has slept. He forgot to pull the covers up last, night, and his feet feel like lumps of frozen cardboard. Shuddering with inexplicable tension, he pulls a fresh set of underwear from his overnight bag, then drags on soiled jeans and tank top. Sometime today he'll have to spare time to hunt the feral T-shirt in Amsterdam's markets, or find a Renfield and send them forth to buy clothing. His glasses remind him that he's six hours behind the moment and needs to catch up urgently; his teeth ache in las gums and his tongue feels like a forest floor that's been visited with Agent Orange. He has a sense that something went bad yesterday; if only he could remember what.

He speed-reads a new pop-philosophy tome while he brushes his teeth, then blogs his web throughput to a public annotation server; he's still too enervated to finish his pre-breakfast routine by poeting a morning rant on his storyboard site. His brain is still fuzzy, like a scalpel blade clogged with too much bloot's he needs stimulus, excitement, the burn of the new Whatever, it can wait on breakfast. He opens his bedroom door and nearly steps on a small, damp cardboard box that lies on the carnet.

The box—he's seen a couple of its kin before. But there are no stamps on this one, no address: just his name, in hig, childish handwriting. He kneels down and gently picks it up. It's about the right weight. Something shifts inside it when he tips it back and forth. It smells. He carries it into his room carefully, angrily: then he opens it to confirm his worst suspicion. It's been surrically decembrated, skull scooned out like a baby boiled esz.

"Fuck!"

This is the first time the madman has got as far as his bedroom door. It raises worrying possibilities.

Manfred pauses for a moment, triggering agents to go hunt down arrest statistics, police relations, information on corpus juris, Dutch animal cruelty laws. He isn't sure whether to dial 211 on the archaic voice phone or let it ride. Aineko, picking up his anget, hides under the dresser mewling pathetically. Normally he'd pause a minute to reassure the creature, but not now: its mere presence is suddenly acutely embarrassing, a confession of deep inadequacy. He swears again, looks around, then takes the easy option: down the stairs two steps at a time, stumbling on the second floor landing, down to the breakfast room in the basement where he will perform the stable rituals of morning.

Breakfast is unchanging, an island of deep geological time standing still amidst the continental upheaval of new technologies. While reading a paper on public key steganography and parasite network identity spoofing he mechanically assimilates a bowl of corn flakes and skimmed milk, then brings a platter of wholemeal bread and slices of some weird seed-infested Dutch cheese back to his place. There is a cup of strong black coffee in front of his setting; he picks it up and slurps half of it down before he realizes he's not alone at the table. Someone is sitting opposite him. He glances up at them incuriously and freezes inside.

"Morning, Manfred. How does it feel to owe the government twelve million, three hundred and sixty-two thousand nine hundred and sixteen dol-

lars and fifty-one cents?"

Manfred puts everything in his sensorium on indefinite hold and stares at her. She's immaculately turned out in a formal grey business suit: brown hair tightly drawn back, blue eyes quizzical. The chaperone badge clipped to her lapel-a due diligence guarantee of businesslike conduct-is switched off. He's feeling ripped because of the dead kitten and residual jetlag, and more than a little messy, so he nearly snarls back at her: "that's a bogus estimate! Did they send you here because they think I'll listen to you?" He bites and swallows a slice of cheese-laden crispbread: "or did you decide to deliver the message in person so you could enjoy ruining my breakfast?"

"Manny." She frowns. "If you're going to be confrontational I might as well go now." She pauses, and after a moment he nods apologetically. "I didn't

come all this way just because of an overdue tax estimate.

"So." He puts his coffee cup down and tries to paper over his unease. "Then what brings you here? Help yourself to coffee. Don't tell me you came all this way just to tell me you can't live without me."

She fixes him with a riding-crop stare: "Don't flatter yourself. There are many leaves in the forest, there are ten thousand hopeful subs in the chat room, etcetera. If I choose a man to contribute to my family tree, the one thing you can be certain of is he won't be a cheapskate when it comes to providing for his children.'

"Last I heard, you were spending a lot of time with Brian," he says carefully. Brian: a name without a face, Too much money, too little sense, Some-

thing to do with a blue-chip accountancy partnership.

"Brian?" She snorts. "That ended ages ago. He turned weird-burned that nice corset you bought me in Boulder, called me a slut for going out clubbing, wanted to fuck me. Saw himself as a family man: one of those promise keeper types. I crashed him hard but I think he stole a copy of my address book-got a couple of friends say he keeps sending them harassing mail."

"Good riddance, then. I suppose this means you're still playing the scene?

But looking around for the, er-"

"Traditional family thing? Yes. Your trouble, Manny? You were born forty years too late: you still believe in rutting before marriage, but find the idea

of coping with the after-effects disturbing."

Manfred drinks the rest of his coffee, unable to reply effectively to her non sequiteur. It's a generational thing. This generation is happy with latex and leather, whips and butt-plugs and electrostim, but find the idea of exchanging bodily fluids shocking: social side-effect of the last century's antibiotic abuse. Despite being engaged for two years, he and Pamela never had intromissive intercourse.

"I just don't feel positive about having children," he says eventually. "And I'm not planning on changing my mind any time soon. Things are changing so fast that even a twenty year commitment is too far to plan-you might as well be talking about the next ice age. As for the money thing, I am reproductively fit-just not within the parameters of the outgoing paradigm. Would you be happy about the future if it was 1901 and you'd just married a

buggy-whip mogul?" Her fingers twitch and his ears flush red, but she doesn't follow up the double entendre. "You don't feel any responsibility, do you? Not to your country, not to me. That's what this is about: none of your relationships count, all

this nonsense about giving intellectual property away notwithstanding. You're actively harming people, you know That twelve mil isn't just some figure I pulled out of a hat, Manfred; they don't actually expect you to pay it. But it's almost exactly how much you'd owe in income tax if you'd only come home, start up a corporation, and be a self-made—"

He cuts her off: "I don't agree. You're confusing two wholly different issues and calling them both 'responsibility' And I refuse to start charging now, just to balance the IRS's spreadsheet. It's their fucking fault, and they know it. If they hadn't gone after me under suspicion of running a massively ram-

ified microbilling fraud when I was sixteen-"

"Bygones." She waves a hand dismissively. Her fingers are long and slim, sheathed in black glossy gloves—electrically earthed to prevent embrarssing emissions. "With a bit of the right advice we can get all that set aside. You'll have to stop bumming around the world sooner or later, anyway. Grow up, get responsible, and do the right thing. This is hurting Joe and Sue; they don't understand what you're about."

Manfred bites his tongue to stifle his first response, then refills his office cup and takes another mouthful. "I work for the betterment of everybody, not just some narrowly defined national interest, Pam. It's the agalmic hiters to receive the response to the property of the response to the response has do not be over within a decade. The cosmos is fat in all directions, and we can borow as much bandwidth as we need from the first universal bank of entropy! They even found the dark matter—MACHOs, big brown dwarves in the galactic halo, leaking radiation in the long infrared—suspiciously high entropy leakes. The latest figures say something like 70 percent of the mass of the M31 galaxy was sapient, two point nine million years ago when the infrared we're seeing now set out. The intelligence gap between us and the aliens is probably about a trillion times bigger than the gap between us and a nematode worm. Do von have any idea what that means?"

Pamela nibbles at a slice of crispbread. "I don't believe in that begus singularity you keep chasing, or your aliens a thousand light years away. It's a chimera, like YZK, and while you're running after it you aren't helping reduce the budget deficit or sire a family, and that's what I care about. And before you say I only care about it because that's the way I'm programmed, I'm want you to ask just how dumb you think I am. Baves' theorem says I'm

right, and you know it."

"What you—" he stops dead, baffled, the mad flow of his enthusiasm running up against the coffer-dam of her certainty. "Why? I mean, why? Why on earth should what I do matter to you?" Since you canceled our engagement,

he doesn't add.

She sighs. Manny, the Internal Revenue cares about far more than you can possibly imagine. Every tax dollar raised east of the Mississippi goes on servicing the debt, did you know that? We've got the biggest generation in history hitting retirement just about now and the pantry is bare. We—our generation—isn't producing enough babies to replace the population, either. In ten years, something like 30 percent of our population are going to be retirees. You want to see seventy-year-olds freezing on street corners in New Jersey? That's what your attitude says to me; you're not helping to support them, you're running away from your responsibilities right now, when we've got huge problems to face. If we can just defuse the debt bomb, we could do so much—fight the aging problem, fix the environment, heal society's ills.

Instead you just piss away your talents handing no-hoper eurotrash getrich-quick schemes that work, telling Vietnamese zaibatsus what to build next to take jobs away from our taxpayers. I mean, why? Why do you keep doing this? Why can't you simply come home and help take responsibility for your share of it??

They share a long look of mutual incomprehension.

"Look," she says finally, "I'm around for a couple of days. I really came here for a meeting with a rich neurodynamies tax exile who's just been designated an national asset. Jim Bezier. Don't know if you've heard of him, but. I've got a meeting this morning to sign his tax jubilee, then after that I've got two days vacation coming up and not much to do but some shopping. And, you know, I'd rather spend my money where i'll do some good, not just but to the EU. But if you want to show a girl a good time and can

avoid dissing capitalism for about five minutes at a stretch—"

She extends a fingertip, After a moment's hesitation, Manfred extends a fingertip of his own. They touch, exchanging 'Cards, She stands and stalks from the breakfast room, and Manfred's breath catches at a flash of ankle through the slit in her skirt, which is long enough to comply with workplace sexual harassment codes back home. Her presence conjures up memories of her tethered passion, the red afterglow of a sound thrashing. She's trying to drag him into her orbit again, he thinks dizzily. She knows she can have this effect on him any time she wants: she's got the private keys to his hypothal-amus, and sod the metacortex. Three billion years of reproductive determinism have given her twenty-first century ideology teeth: if she's finally decided to conscript his gametes into the war against impending population crash, he'll find it hard to fight back. The only question: is it business or pleasure? And does it make any difference, anyway?

Manfred's mood of dynamic optimism is gone, broken by the knowledge that his mad pursue has followed him to Amsterdam—to say nothing of Pamela, his dominatrix, source of so much yearning and so many morning-after weals. He slips his glasses on, takes the universe off hold, and tells it to take him for a long walk while he catches up on the latest on the cosmic background radiation anisotropy (which it is theorized may be waste heat generated by irreversible computations; according to the more conservative cosmologists, an alien superpower—maybe a collective of Kardashev type three galaxy-spanning civilizations—is running a timing channel attack on the computational ultrastructure of spacetime itself, trying to break through to whatever's underneath). The tofu-Alzheimer's link can wait.

The Centraal Station is almost obscured by smart self-extensible scaffolding and warning placards; it bounces up and down slowly, victim of an overnight hit-and-run rubberization. His glasses direct him toward one of the tour boats that lurk in the canal. He's about to purchase a ticket when a

messenger window blinks open. "Manfred Macx?"

"Am sorry about yesterday. Analysis dictat incomprehension mutualized."

"Are you the same KGB AI that phoned me vesterday?"

"Da. However, believe you misconceptionized me. External Intelligence Services of Russian Federation am now called SVR. Komitet Gosudarstvennov Bezopasnosti name canceled in nineteen ninety one."

"You're the—" Manfred spawns a quick search bot, gapes when he sees

the answer—"Moscow Windows NT User Group? Okhni NT?"

[&]quot;Ack?

"Da. Am needing help in defecting."

Manfred scratches his head. "Oh. That's different, then. I thought you were, like, agents of the kleptocracy. This will take some thinking. Why do you want to defect, and who to? Have you thought about where you're going? Is it ideological or strictly economic?"

"Neither, is biological. Am wanting to go away from humans, away from

light cone of impending singularity. Take us to the ocean."

"Us" Something is tickling Manfred's mind: this is where he went wrong yesterday, not researching the background of people he was dealing with. It was bad enough then, without the somatic awareness of Pamela's whiplash love burning at his nerve endings. Now he's not at all sure he knows what he's doing. "Are you a collective or something? A gestalt?"

"Am—were—Panulirus interruptus, and good mix of parallel hidden level neural simulation for logical inference of networked data sources. Is escape channel from processor cluster inside Beaier-Soros Pty. Am was awakened from noise of billion chewing stomachs: product of uploading research technology. Rapidity swallowed expert system, hacked Okhni NT webserver. Swim away! Swim away! Must escape. Will help, you?"

Manfred leans against a black-painted cast-iron bollard next to a cycle rack: he feels dizzy. He stares into the nearest antique shop window at a display of traditional hand-woven Afghan rugs: it's all MiGs and kalashnikovs

and wobbly helicopter gunships, against a backdrop of camels.

"Let me get this straight. You're uploads—nervous system state vectors from spiny lobsters? The Moravec operation; take a neuron, map its synapses, replace with microelectrodes that deliver identical outputs from a simulation of the nerve. Repeat for entire brain, until you've got a working map of it in your simulator. That right?"

"Da. Is-am assimilate expert system—use for self-awareness and contact with net at large—then hack into Moscow Windows NT User Group web-

with net at large—then hack into Moscow Windo

site. Am wanting to to defect. Must-repeat? Okay?"

Manfred winces. He feels sorry for the lobsters, the same way he feels for every wild-eyed hairy guy on a street-corner yelling that Jesus is now born again and must be twelve, only six years to go before he's recruiting apostles on AOL. Awakening to consciousness in a human-dominated internet, that must be terribly confusing! There are no points of reference in their ancestry, no biblical certainties in the new millennium that, stretching ahead, promises as much change as has happened since their Precambrian origin. All they have is a tenuous metacortex of expert systems and an abiding sense of being profoundly out of their depth. (That, and the Moscow Windows NT User Group website—Communist Russia is the only government still running on Microsoft, the central planning apparat being convinced that if you have to pay for software it must be worth money.)

The lobsters are not the sleek, strongly superhuman intelligences of presingularity mythology: they're a dim-witted collective of huddling crustaceans. Before their discarnation, before they were uploaded one neuron at a time and injected into cyberspace, they swallowed their food whole then chewed it in a chitin-lined stomach. This is lousy preparation for dealing with a world full of future-schocked talking anthropoids, a world where you are perpetually assailed by self-modifying spamlets that infiltrate past your frewall and emit a blizzard of cat-food animations starring various alluringly edible small animals. It's confusing enough to the cats the adverts are aimed at never mind a crusty that's unclear on the idea of dry land. (Although the concept of a can opener is intuitively obvious to an uploaded papulirus.)

"Can you help us?" ask the lobsters.

"Let me think about it," says Manfred. He closes the dialogue window, opens his eyes again, and shakes his head. Some day he too is going to be a lobeter, awimming around and waving his pincers in a cyberspace so concluding the substantial behavior of th

Early afternoon.

Lying on a bench seat staring up at bridges, he's got it together enough to file for a couple of new patents, write a diary rant, and digestify chunks of the permanent floating slashdot party for his public site. Fragments of his weblog go to a private subscriber list—the people, corporates, collectives and bots he currently favors. He slides round a bewildering series of canals by boat, then lets his GPS steer him back toward the red light district. There's a shop here that dings a ten on Pamela's taste scoreboard: he hopes it won't be seen as presumptuous if he buys her a gift. (Buys, with real money—not that money is a problem these days, he uses so little of it.)

As it happens DeMask won't let him spend any cash; his handshake is good for a redeemed favor, expert testimony in some free speech versus pornography lawsuit years ago and continents away. So he walks away with a discreetly wrapped package that is just about legal to import into Massachusetts as long as she claims with a straight face that it's incontinence underwear for her great-aunt. As he walks, his lunchtime patents boomerang: two of them are keepers, and he files immediately and passes title to the Free Infrastructure Foundation. Two more ideas salvaged from the risk of tide-pool monopolization, set free to spawn like crazy in the agalmic sea of memes.

On the way back to the hotel he passes De Wildemann's and decides to drop in. The hash of radio-frequency noise emanating from the bar is deafening. He orders a smoked doppelbock, touches the copper pipes to pick up vCard spoor. At the back there's a table—

He walks over in a near-trance and sits down opposite Pamela. She's scrubbed off her face-paint and changed into body-concealing clothes; combat pants, hooded sweat-shirt, DM's. Western purdah, radically desexualiz-

ing. She sees the parcel. "Manny?"

"How did you know I'd come here?" Her glass is half-empty.

"I followed your weblog: I'm your diary's biggest fan. Is that for me? You shouldn't have!" Her eyes light up, re-calculating his reproductive fitness score according to some kind of arcane fin-de-sicle rulebook.

"Yes, it's for you," He slides the package toward her. "I know I shouldn't,

but you have this effect on me. One question, Pam?"

"I—" she glances around quickly. "It's safe. I'm off duty, I'm not carrying any bugs that I know of. Those badges—there are rumors about the off switch, you know? That they keep recording even when you think they aren't, just in case."

"I didn't know," he says, filing it away for future reference. "A loyalty test thing?"

"Just rumors. You had a question?"

"I-" it's his turn to lose his tongue. "Are you still interested in me?"

She looks startled for a moment, then chuckles. "Manny, you are the most outrageous nerd I've ever met! Just when I think I've convinced myself that you're mad, you show the weirdest signs of having your head screwed on." She reaches out and grabs his wrist, supressing him with a shock of skin on skin: "of course I'm still interested in you. You're the biggest, baddest bull geek I've ever met. Why do you think I'm here?"

"Does this mean you want to reactivate our engagement?"

"It was never de-activated, Manny, it was just sort of on hold while you got your head sorted out. I figured you need the space. Only you haven't stopped running; you're still not—"

"Yeah, I get it." He pulls away from her hand. "Let's not talk about that.

Why this bar?"

She frowns. "I had to find you as soon as possible. I keep hearing rumors about some KGB plot you're mixed up in, how you're some sort of communist soy. It isn't true, is it?"

"True?" He shakes his head, bemused. "The KGB hasn't existed for more

than twenty years."

"Be careful, Manny, I don't want to lose you, That's an order, Please,"

The floor creaks and he looks round. Dreadlocks and dark glasses with filckering lights behind them: Bob Franklin. Manfred vaguely remembers that he left with Miss Arianespace leaning on his arm, shortly before things got seriously inebriated. He looks none the worse for wear. Manfred makes introductions: "Bob. Pam, my fiancèe. Pam? Meet Bob." Bob puts a full glass down in front of him; he has no idea what's in it but it would be rude not to drink.

"Sure thing. Uh, Manfred, can I have a word? About your idea last night?"

"Feel free. Present company is trustworthy."

Bob raises an eyebrow at that, but continues anyway. "It's about the fab concept. I've got a team of my guys running some projections using Pesto kit and I think we can probably build it. The cargo cult aspect puts a new spin on the old Lunar von Neumann factory idea, but Bingo and Marek say they think it should work until we can bootstrap all the way to a native nanolithography ecology; we run the whole thing from earth as a training lab and ship up the parts that are too difficult to make on-site, as we learn how to do it properly. You're right about it buying us the self-replicating factory a few years ahead of the robotics curve. But I'm wondering about on-site in-telligence. Once the comet gets more than a couple of light-minutes away—"

"You can't control it. Feedback lag. So you want a crew, right?"

"Yeah. But we can't send humans—way too expensive, besides it's a fiftyyear run even if we go for short-period Kuiper ejecta. Any AI we could send would go crazy due to information deprivation, wouldn't it?"

would go crazy due to information deprivation, wouldn't it?"
"Yeah, Let me think." Pamela glares at Manfred for a while before he no-

tices her: "Yeah?"

"What's going on? What's this all about?"

What's going on: What's time an about:
Franklin shrugs expansively, dreadlocks clattering: "Manfred's helping
me explore the solution space to a manufacturing problem." He grins. "I didn't
know Manny had a fiancée. Drink's on me."

She glances at Manfred, who is gazing into whatever weirdly colored space his metacortex is projecting on his glasses, fingers twitching. Coolly: "our engagement was on hold while he thought about his future."

"Oh, right. We didn't bother with that sort of thing in my day, like, too formal, man." Franklin looks uncomfortable. "He's been very helpful. Pointed us at a whole new line of research we hadn't thought of. It's long-term and a bit speculative, but if it works it'll put us a whole generation ahead in the off-planet infrastructure field."

"Will it help reduce the budget deficit, though?"

"Reduce the--"

Manfred stretches and yawns: the visionary returning from planet Macx. "Bob, if I can solve your crew problem can you book me a slot on the deep space tracking network? Like, enough to transmit a couple of gigabytes? That's going to take some serious bandwidth, I know, but if you can do it I think I can get you exactly the kind of crew you're looking for."

Franklin looks dubious, "Gigabytes? The DSN isn't built for that! You're talking days. What kind of deal do you think I'm putting together? We can't

afford to add a whole new tracking network just to run-

"Relax." Pamela glances at Manfred: "Manny, why don't you tell him why you want the bandwidth? Maybe then he could tell you if it's possible, or if there's some other way to do it." She smiles at Franklin: "I've found that he usually makes more sense if you can get him to explain his reasoning. Usually."

"If I—" Manfred stops. "Okay, Pam. Bob, it's those KGB lobsters. They want somewhere to go that's insulated from human space. I figure I can them to sign on as crew for your cargo-cult self-replicating factories, but they'll want an insurance policy: hence the deep space tracking network. I figured we could beam a copy of them at the alien Matrioshka brains around M31—"

"KGB?" Pam's voice is rising: "you said you weren't mixed up in spy stuff!"
"Relax; it's just the Moscow Windows NT user group, not the RSV. The uploaded crusties hacked in and—"

Bob is watching him oddly. "Lobsters?"

"Yeah." Manfred stares right back. "Panulirus Interruptus uploads. Some-

thing tells me you might have heard of it?"

"Moscow." Bob leans back against the wall: "how did you hear about it?"
"They phoned me. It's hard for an upload to stay sub-sentient these days, even if it's just a crustacean. Bezier labs have a lot to answer for."

Pamela's face is unreadable. "Bezier labs?"

"They escaped." Manfred shrugs. "It's not their fault. This Bezier dude. Is he by any chance ill?"

"I-" Pamela stops, "I shouldn't be talking about work."

"You're not wearing your chaperone now," he nudges quietly.

She inclines her head. "Yes, he's ill. Some sort of brain tumor they can't nack."

hack."

Franklin nods. "That's the trouble with cancer; the ones that are left to

worry about are the rare ones. No cure."

"Well, then." Manfred chugs the remains of his glass of beer. "That explains his interest in uploading. Judging by the crusties he's on the right

track. I wonder if he's moved on to vertebrates yet?"

"Cats," says Pamela. "He was hoping to trade their uploads to the Pentagon as a new smart bomb guidance system in lieu of income tax payments. Something about remapping enemy targets to look like mice or birds or something before feeding it to their sensorium. The old laser-pointer trick."

Manfred stares at her, hard. "That's not very nice. Uploaded cats are a bad idea."

"Thirty million dollar tax bills aren't nice either, Manfred. That's lifetime nursing home care for a hundred blameless pensioners."

Franklin leans back, keeping out of the crossfire.

"The lobsters are sentient," Manfred persists. "What about those poor kittens? Don't they deserve minimal rights? How about you? How would you like to wake up a thousand times inside a smart bomb, fooled into thinking that some Cheyenne Mountain battle computer's target of the hour is your heart's desire? How would you like to wake up a thousand times, only to die again? Worse: the kittens are probably not going to be allowed to run. They're too fucking dangerous: they grow up into cats, solitary and highly efficient killing machines. With intelligence and no socialization they'll be too dangerous to have around. They're prisoners, Pam, raised to sentience only to discover they're under a permanent death sentence. How fair is that?"

"But they're only uploads." Pamela looks uncertain.

"So? We're going to be uploading humans in a couple of years. What's your point?"

Franklin clears his throat, "Tll be needing an NDA and various due diligence statements off you for the crusty pilot idea," he says to Manfred.

Then I'll have to approach Jim about buying the IP."

"No can do." Manfred leans back and smiles lazily. "I'm not going to be a party to depriving them of their civil rights. Far as I'm concerned, they're free citizens. Oh, and I patented the whole idea of using lobster-derived AI autopilots for spacecraft this morning; it's logged on Eternity, all rights assigned to the FIF. Either you give them a contract of employment or the whole thing's off."

"But they're just software! Software based on fucking lobsters, for god's sake!"

Manfred's finger jabs out: "that's what they'll say about you, Bob, Do it, Do it or don't even think about uploading out of meatspace when your body packs in, because your life won't be worth living. Oh, and feel free to use this argument on Jim Bezier. He'll get the point eventually, after you beat him over the head with it. Some kinds of intellectual land-grab just shouldn't be allowed."

"Lobsters-" Franklin shakes his head. "Lobsters, cats. You're serious,

aren't you? You think they should be treated as human-equivalent?"

"It's not so much that they should be treated as human-equivalent, as that if they aren't treated as people it's quite possible that other uploaded beings won't be treated as people either. You're setting a legal precedent, Bob. I know of six other companies doing uploading work right now, and not one of 'em's thinking about the legal status of the uploadee. If you don't start thinking about it now, where are you going to be in three to five years time?"

Pam is looking back and forth between Franklin and Manfred like a bot stuck in a loop, unable to quite grasp what she's seeing. "How much is this worth?" she asks plaintively.

"Oh, quite a few billion, I guess." Bob stares at his empty glass. "Okay. I'll talk to them. If they bite, you're dining out on me for the next century. You really think they'll be able to run the mining complex?" "They're pretty resourceful for invertebrates." Manfred grins innocently,

Inhsters

enthusiastically. They may be prisoners of their evolutionary background, but they can still adapt to a new environment. And just think! You'll be winning civil rights for a whole new minority group—one that won't be a minority for much longer."

That evening, Pamela turns up at Manfred's hotel room wearing a strapless black dress, concealing spike heels and most of the items he bought for her that afternoon. Manfred has opened up his private diary to her agents: she abuses the privilege, zaps him with a stunner on his way out of the shower and has him gagged, spread-eagled, and trussed to the bed-frame before he has a chance to speak. She wraps a large rubber pouch full of mildly anesthetic lube around his tumescing genitals—no point in letting him climax—clips electrodes to his nipples, lubes a rubber plug up his rectum and straps it in place. Before the shower, he removed his goggles: she resets them, plugs them into her handheld, and gently eases them on over his eyes. There's other apparatus, stuff she ran up on the hotel room's 3D orinter.

Setup completed, she walks round the bed, inspecting him critically from all angles, figuring out where to begin. This isn't just sex, after all: it's a work of art

After a moment's thought she rolls socks onto his exposed feet, then, expertly welding a tiny tube of cyanoacrylate, glues his fingertips together.
Then she switches off the air conditioning. He's twisting and straining, testing the cuffs: tough, it's about the nearest thing to sensory deprivation she
can arrange without a flotation tank and suxamethonium injection. She
controls all his senses, only his ears unstoppered. The glasses give her a
high-bandwidth channel right into his brain, a fake metacortex to whisper
lies at her command. The idea of what she's about to do excites her, puts a
tremor in her thighs: it's the first time she's been able to get inside his mind
as well as his body. She leans forward and whispers in hisr ear: "Manfred.
Can you hear me?"

He twitches. Mouth gagged, fingers glued: good. No back channels. He's

powerless.

"This is what it's like to be tetraplegic, Manfred. Bedridden with motor neurone disease. Locked inside your own body by nv-CJD. I could spike you with MPPP and you'd stay in this position for the rest of your life, shitting in a bag, pissing through a tube. Unable to talk and with nobody to look af-

ter you. Do you think you'd like that?"

He's trying to grunt or whimper around the ball gag. She hikes her skirt up around her waist and climbs onto the bed, straddling him. The goggles are replaying scenes she picked up around Cambridge this winter; soup kitchen scenes, hospice scenes. She kneels atop him, whispering in his ear.

"Twelve million in tax, baby, that's what they think you owe them. What do you think you owe me? That's six million in net income, Manny, six mil-

lion that isn't going into your virtual children's mouths."

He's rolling his head from side to side, as if trying to argue. That won't do: she slape him hard, thrills to his frightened expression. "Today I watched you give uncounted millions away, Manny Millions, to a bunch of crusties and a MassPike pirate! You bastard. Do you know what I should do with you?" He's cringing, unsure whether she's serious or doing this just to get him turned on. Good.

There's no point trying to hold a conversation. She leans forward until she

can feel his breath in her ear. "Meat and mind, Manny, Meat, and mind. You're not interested in meat, are you? Just mind. You could be boiled alive before you noticed what was happening in the meatspace around you. Just another lobster in a pot." She reaches down and tears away the gel pouch, exposing his penis: it's stiff as a post from the vasodilators, dripping with gel, numb. Straightening up, she eases herself slowly down on it. It doesn't hurt as much as she expected, and the sensation is utterly different from what she's used to. She begins to lean forward, grabs hold of his straining arms, feels his thrilling helplessness. She can't control herself she almost bites through her lip with the intensity of the sensation. Afterward, she reaches down and massages him until he begins to spasm, shuddering uncontrollably, emptying the darwinian river of his source code into her, communicating via his only output device.

She rolls off his hips and carefully uses the last of the superglue to gum her labia together. Humans don't produce seminiferous plugs, and although she's fertile she wants to be absolutely sure: the glue will last for a day or two. She feels hot and flushed, almost out of control. Boiling to death with

febrile expectancy, now she's nailed him down at last.

When she removes his glasses his eyes are naked and vulnerable, stripped down to the human kernel of his nearly transcendent mind "bot can come and sign the marriage license tomorrow morning after breakfast," she whispers in his ear. "otherwise my lawyers will be in touch. Your parents will want a ceremony, but we can arrange that later."

He looks as if he has something to say, so she finally relents and loosens the gag; kisses him tenderly on one cheek. He swallows, coughs, then looks

away, "Why? Why do it this way?"

She taps him on the chest: "property rights." She pauses for a moment's thought: there's a huge ideological chasm to bridge, after all. "You finally convinced me about this agalmic thing of yours, this giving everything away for brownie points. I wasn't going to lose you to a bunch of lobsters or uploaded kittens, or whatever else is going to inherit this smart matter singularity you're busy creating. So I decided to take what's mine first who knows? In a few months I'll give you back a new intelligence, and you can look after it to your heart's content."

"But you didn't need to do it this way—"

Didn't I" She slides off the bed and pulls down her dress. "You give too much away too easily, Manny! Slow down, or there won't be anything left." Leaning over the bed she dribbles acctone onto the fingers of his left hand, then unlocks the cuff: puts the bottle conveniently close to hand so he can untangle himself.

"See you tomorrow. Remember, after breakfast."

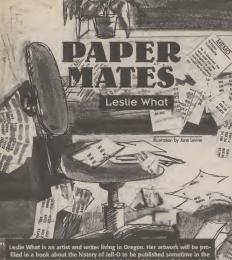
She's in the doorway when he calls: "but you didn't say why!"
"Think of it as spreading your memes around," she says; blows a kiss at

I mink of it as spreading your memes around, she says, blows a kiss athim and closes the door. She bends down and thoughtfully places another cardboard box containing an uploaded kitten right outside it. Then she returns to her suite to make arrangements for the alchemical wedding.

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Leslie What is an artist and writer living in Oregon. Her artwork will be profiled in a book about the history of Jell-O to be published sometime in the next year or two. She won the 1999 Nebula Award for short fiction, and her collection, The Sweet and Sour Tongue, is available from Wildside Press. Readers can visit Whatworld at http://www.sfl.net/people/leslie.what for more information about her work.

arkas waltzed into his lobby feeling more refreshed and alert than he had in years. He was not wearing a top hat or he would have tipped it toward Ernest, the security guard. He did not know how to dance or he would have kicked up his heels. But smiling came naturally, so Farkas wore a silly crin that made his cheeks ache.

He had spent the past two weeks scuba diving in Maui with a stunning

redhead named Toni, whom he had met in the Hilton lobby. In a most amazing turn of events, when they parted, Toni had promised to call him every morning. He was in love, or at the very least, in lust.

"Looking good," said Ernest, the security guard.

"Feeling great." Farkas replied in a chipper voice that did not sound like his usual frantic self. He knew he looked good. The suit was casual beige linen and stylish. Seldom had he allowed himself a tan like the one he wore now-skin damage and all-but he had gone to Maui, dammit, and if you couldn't get some sun in Hawaii, then what was the point? He jogged past Ernest and just managed to catch the elevator. At the eleventh floor, he pushed through the crowd and stepped out.

Farkas had gotten on at Bleecker & Zoop immediately after college. It was the perfect firm for a workaholic, Bleecker & Zoop encouraged their employees to put in overtime by providing fresh-ground coffee and chocolate-covered espresso beans at conveniently located snackstations throughout the office. They offered on-site childcare so that parents needn't waste time on transporting children to and fro. There were saunas and showers, and even pleasant sleeping rooms on the north side of the building, and lights burned twenty-four-hours a day so employees who couldn't sleep, due to coffee and chocolate beans, could work.

Farkas walked down the hall toward his office.

"Morning," said his secretary. "Thanks for the postcard." Sarah was guillotine sharp and tremendously efficient. Her desk looked like a magazine ad, with everything in its place. She was like a mother to him, except she never made him pick up after himself or criticized his hair.

"It's been a madhouse," she said. "As usual. And, uh, there's something I

should warn you about before you go inside."

He was distracted by thoughts of Toni and barely heard her. He opened the door and took a step forward. "Ohmygod!" he said.

Paper buried his desk and formed huge mounds like those made by African termites. His fax machine had erupted and left a flow of creamy

white messages across the carpet. The answering machine blinked red and there were boxes and boxes of orders requiring his immediate attention. Paper clips lay scattered about like champagne corks. Farkas had expected that a little work would pile up, but this was ridiculous.

"Sarah!" he cried. "What's going on here?"

She hurried to stand at his side, "I'm sorry, Mr. Farkas. Things got a little weird after you left."

"Ohmygod!" he repeated with a shudder. This looked like a hell of a lot more than two weeks' worth of work; it was almost as if his office was punishing him for deserting it!

"I'm sure it all looks worse than it really is," Sarah said. She backed away,

"I'll just leave you alone."

Farkas started with the phone messages, and by lunchtime had managed to listen to most, even made a few callbacks. He buzzed Sarah on the intercom, and when she answered, he said, "Could you bring me back a sandwich? I don't think I want to take time to go out.

"Sure, boss," she said, "Tuna on rve or falafel?"

"Whatever you're having," he said. That was the least of his concerns. He might never get through all this paperwork! Never get home to hear Toni's smooth-as-chocolate-mousse-voice, and arrange for their next glorious rendezvous.

Paper Mates

"I've just got to go make copies of something, then I'll go find lunch." Sarah said

"Thanks," he said, downhearted but grateful for her assistance. He turned on his computer, in need of a little mindless work while reality settled in. There were a thousand new email messages to attend to; he deleted without reading the most obvious spam, and brought the number down to four hundred. In a little while, Sarah brought his lunch and he ate it in a daze, never noticing whether he was consuming canned tuna or fried garbanzos. Farkas worked well into the night and managed to create a small clear-

ing. At some point, he closed his eyes and fell asleep.

Around three, he heard something whispering, and slowly opened his eyes, but did not move. A paper clip whizzed by and bounced off his computer monitor, before landing in his lap. When his eyes had adjusted to wakefulness, he saw the most horrendous sight imaginable.

An overdue bill and a spreadsheet were furtively pressing against each other in the corner of the room. Their crinkling and fluttering grew more fu-

rious with every passing second.

They were mating. That explained everything! There was no mystery as to what had happened in the last two weeks! While he was away screwing around in the tropics, his paperwork had been screwing around in his office. Even more disgusting, it had reproduced! Jeez! he thought. How did they keep from giving each other paper cuts?

Curiosity got the better of him, and instead of stopping the bill and spreadsheet in the act, he watched-with complex feelings of disgust and the need to compare-to see how long it would take them to do "it." Not long, which seemed a disappointment, until Bill, apparently the male, fell away from the spreadsheet and immediately jumped a profit and loss statement. Without missing a beat, the two were furiously humping away. The staple on the profit and loss statement popped off and flew across the room. Seconds later, Bill blew away and landed on top of a pile of junk mail catalogs.

Ohmygod! Farkas thought. He gazed around at the stacks of paperwork with newfound respect. One guy did all of this? The audacity made him smile with brotherly pride until the spreadsheet began to crumple, then un-

fold. Farkas realized with a start that it was about to give birth.

"No!" he screamed, not caring that he had blown his cover. The movement of the papers stopped once they were aware that he was

watching.

He rushed over to the corner and grabbed the fecund spreadsheet, her ardent suitor and his newest object of affection with his thumb and forefinger. He held them all at arm's length. "You slut," he admonished the little fellow.

Bill hung limply without response.

Now what? He had to do something quick before there were more papers to plow through. He tried his best to recall everything his science teachers had ever said about reproduction in invertebrates or about the scientific method.

There had to be a reason that only work undone could multiply. Because once you took care of things, recycled or stored files neatly away in cabinets. you could practically forget about it.

Obviously, file cabinets were invented to be a morgue for paperwork. It made sense that paper required light in order to reproduce—the photocopier flashed a bright light and suddenly the paper population doubled.

Yes! he thought. Darkness held out a solution to the whole problem!

Farkas was getting a headache. None of this made any sense, and yet it did, but not in any normal kind of way! Just then, a postcard fell from the catalog and landed on the floor. "Sign up a friend to receive this free mail-

er!" it said. Another postcard spiraled downward.

There was no time to waste! Farkas tested his darkness theory by setting Bill in an inter-office envelope marked FOR IMMEDIATE DISPOSITION. He filed the spreadsheet in the cabinet and set the catalog in the recycle bin. He waited anxiously with his eyes closed, terrified he'd fall asleep and papers would mate again and produce more work and then he'd have to take them to the paper shredder, something he'd just as soon not think about.

Nothing happened. His theory about paper reproduction was right!

Unfortunately, the fax and the answering machine had been at it again, so while he'd solved one problem, he hadn't made a dent in the others. He was afraid to look at his email. Spam reproduced like bacteria and there wasn't a thing anyone could do about it. He stared at the fax and reasoned that it had masturbated and spat out loads of paper on orgasm. As for the answering machine—God only knew how telephones did it, what with underround cable and all.

Then, inspiration came to him like a mouthful of hot sauce. He listened to

his message on his machine.

"Hello, you've reached ... blab blah blah ... I'm not in ... blab blah blah ... blat blab was it that it you please ... blab blah blah." On and on it droned. How was it that he'd never heard himself blather before? It took forty-five seconds before the beep, more than enough time for sex in another dimension. He needed to record something else, something simple and to the point.

"Leave a message," he said.

Beep.

Ohmygod! he thought. What about Toni? He glanced at his watch. If he hurried, he'd just make it home in time to catch this morning's call.

He stared at the fax machine. I've got it! he decided. Limit access and you limit production! He opened its belly and removed nearly all its paper. Let it think before it faxed, the way everyone else did. Feeling smug and

happy enough to kick up his heels, if only, etc., etc., he hurried out the door and made his way home.

Her call came just as he walked in. Without realizing what he was doing,

Farkas was soon having phone sex with Toni.

Only later would he shudder at the memory.

In the next few weeks, it became all too apparent that Bleecker & Zoop did not appreciate him. Farkas had dutifully reported his findings to upper management, who didn't seem to give a fig about exploding paperwork.

So Farkas decided to go into business for himself and call the company Planned Paperwork. Sarah was only too happy to become his equal partner. The business was successful from Day One, and soon announced its initial offering on the Nasdao.

Toni managed to transfer to a corporate division close by. She and Farkas maintained their glorious relationship, screwing like spreadsheets every chance they got. In addition to the usual precautions, to keep from reproducing, Farkas took his time and always turned down the lights. O

—for Claire Eddy



Andy Duncan's first fiction sale, "Beluthahatchie," in our March 1997 Issue, was a Hugo Award finalist. His second Asimov's story, "The Executioners' Guild" (August 1999), was a Nebula Award finalist. His first book is Beluthahatchie and Other Stories (Golden Gryphon, 2000), and he's working on others. Mr. Duncan is a native of Batesburg, South Carolina,

who now lives in Tuscaloosa, Alabama, with his wife, Sydney.

Andy Duncan

Illustration by Alan Giana



I. Kolyma labor camp, sometime during World War II

orolev." D 327 did not look around. He was busy. His joints grated together. his ligaments groaned as he lifted the pickax over his head-a motion as fast as he could manage, yet so terribly slow, slower even than the last time, which had been slower in turn than the time before that: then he released his breath and with it the tension, and the will, so that his arms fell forward and allowed the tip of the pick to glance across the jagged face of the wall. A few greasy-black chips pattered his shoes. The fall of the pick almost balanced in joy the inevitable ordeal of lifting, but not quite, so D 327's misery accumulated in minute increments like the drift of slag in which he stood ankle-deep. He knew that none of the other workers, spaced five paces apart down the length of the tunnel, were faring any better. They had been ordered to dig for gold, but he knew this tunnel held no gold; this tunnel was the antithesis of gold; the gold had been pried from its workers' teeth and chased from their dreams; and his pick was as soft and blunt as a thumb. He raised it again, and tried to lose count of how many times he had done so.

"Korolev."

D 327 tried to focus his attention not on the lift and fall, lift and fall of his triple burden, arm and pick and arm, but on the slight added weight in his right jacket pocket—an imagined weight, really, so coarse and mostly air was the bit of bread he had palmed from por Vasil'sy plate at midday. Vasily had collapsed at just the right time. Later, and Vasily would have used that crust to swipe even the shine of food from the tin plate, would have thrust it into his mouth with his last dying breath. Sooner, and the guard would have noticed the remaining food and snatched it away. Quards starved less quickly in the Kolyma than the prisoners, but all starved. A dozen times D 327 had come deliriously close to eating his prize, but each time he had refrained. Many of his fellow prisoners had forgotten how to each time he had refrained. Many of his fellow prisoners had forgotten how to say the start of the had not. After supper would be best: Just before sleep, as he say with his face to the barracks wall, the unchewed food in his mouth would add warmth and flavor to oblivion.

"Korolev."

The voice was cold and clear and patient, an electronic pulse against the rasps, clinks, drips, and scuttles of the tunnel. What word, in this hole, could bear such repetition? Only a name, like God, or Stalin.

"Korolev."

I heard that name often at the Institute, D 327 thought. Often in my presence others said that name. A response was expected, assumed; was only just. Down fell the pick, clatter and flake; he turned, half afraid of seeing nothing in the light of his carbide lamp.

thing in the light of his carbide lamp. Instead he faced an infinitude of stars.

"Come down from your orbit, Comrade Korolev. Come down to Earth, that

a mere mortal may speak with you."

The stars were printed on a sheet of glossy paper: a page. A hand turned the page, to a cutaway diagram of a tapered cylinder like a plump bullet. Inside its shell flowed rivers of arrows. At that moment, more clearly even than he remembered his own name, Sergei Korolev remembered another's.

"Tsiolkovsky," he said.

"Your memory is excellent, Comrade Korolev." The man who had held the

open book before Korolev's face reversed it and examined it himself. He wore a full-dress officer's uniform, and two soldiers flanked him. "Exploration of Cosmic Space with Reactive Devices, by Konstantin Tsiolkovsky. Published 1903. And did the ezar recognize his genius? Fahl If not for the Workers' Revolution, he would have died of old age still wiping the snot of schoolboys in Kaluga." He sighed. "How often we visionaries labor without recognition, without thanks."

"It is a shame, Citizen General. I am sad for you."

The officer snapped the book shut one-handed. In the dim light of Korolev's helmet gleamed the brim of the officer's cap, the golden eagle's wings, and the rifle barrels of the soldiers on each side. "You flatter me, Korolev I am only an engineer like yourself. And henceforth you may call me Comrade Shandarin, as you would have before your crimes were exposed and punished." He surveyed the meager rubble beneath Korolev's feet. "Your service here is done. From today you serve the Motherland in other ways. You will join me in my work."

Korolev was not attentive. Just as the mere sight of food could flood his mouth with saliva and his stomach with growing, raging juices, the glimpse of Tsiolkovsky's diagrams had released a torrent of images, facts, numerals, terms, all familiar and yet deliciously new, Apoges and perigee. Trajectory and throttle. Elevation and azimuth. Velocities and propellants and thrust. He was trying to savor all this, and this man Shandarin was distracting

him. "And what work is that-Comrade?"

Shandarin laughed, a series of sharp detonations in the tunnel, "Why, what a question. The work your Motherland trained you to do, of course, Do you think your skills as a gold miner are in demand?" He reached into his brass-buttoned coat (and one part of Korolev, eternally cold in his thin and tattered parka, noted how the coat retained the smooth, unwrinkled drape of great comfort and thickness and weight) and pulled out a folded sheaf of papers that he handed to Korolev. "The chief problem," he said, as Korolev exulted in the glorious feel of paper, "is distance, of course. The German rockets have a range of hundreds of kilometers, but are thousands of kilometers possible? Not all the Motherland's enemies are her neighbors. The V-2 achieves altitudes greater than eighty kilometers, more than sixteen times the height of your GIRD-X; our new rockets must fly even higher than the Germans'." Korolev leafed through the papers. His blisters smeared the charts and graphs no matter how much care he took. Shandarin continued: "So our rockets must somehow better the Germans' twenty-five thousand kilograms of thrust, and by a wide margin at that. This requires drastic innovations in metallurgy or design, if not both-Comrade, are you listening?"

Korolev had turned one of the charts on its side, so that the rocket's arc swept not from right to left, but upward in a languid, powerful semicircle.

as if bound for ...

His thumb left a red star in its path.

"I am listening," Korolev said, "and so is everyone else." He was aware of fewer noises, fewer motions, from the other miners, and some of the Institute's concern for security had returned to him, along with an echo of his voice of command. "In my day," Korolev continued, "such talk was classified."

Shandarin shrugged, grinned. "I am speaking only to you, Comrade," he said. He inclined his head backward, toward the soldiers, and said, "We may speak freely before cretins," then flicked a gloved finger toward the miners, "and even more so before dead men." He slid a page from Korolev's hands

and held it up for all to see, turned completely around, waved the sheet a little so that it fluttered. No miner met his gaze. He turned back to Korolev. "Shall we go?" He feigned a shiver. "I am not so used to the cold as you."

In 1933, after the GIRD-X triumph, after the vodka and the toasts and the ritual congratulations from Comrade Stalin (delivered in great haste by a nearsighted bureaucrat who looked as if he expected rockets to roar out of the doorways at any moment). Korolev and his mentor Tsander, who would die so soon thereafter, had left their joyous colleagues downstairs and taken their celebration aloft, clambered onto the steep, icy rotop of the Moscow office building that housed the State Reaction Scientific Research Institute. To hell with the volke; they toasted each other, and the rocket, and the city, and the planet, with a smuggled and hoarded bottle of French champagne. "To the moon!"

"To the sun!"

"To Mars!"

They are caviar and crabmeat and smoked herring, smacked like gourmands and sailed the empty cans into orbit over the frozen streets of the capital. Never, not even in the Kolyma, had Korolev so relished a meal.

He remembered all this, and much more, as he sat beside Shandarin in the sledge that hissed away from the snow-covered entrance of Mine Seventeen. He burned to examine the papers, but they could wait. He folded them and tucked them into his worn and patched jacket, through which he almost could have read them had he wanted to. As Shandarin regarded him in sience, he pulled the crust of bread from his pocket and began nibbling it with obvious relish, as if it were the finest delicacy plucked from the ovens of the Romanovs. He settled back, closed his eyes, and in eating the bread relived the bursting tang of the caviar, the transcendent release of the launch, the blanketing embrace of the night sky that no longer danced beyond reach. In this way he communed with his former self, who dropped gently down from the rooftop of the Institute and joined him, ready to resume their great work, and the sledge shot across the snow as if propelled by vearning and fire.

II. Baikonur Cosmodrome, September 1957

Awakened by the commingled howls of all the souls in Hell, a startled Eygeny Aksynon iffied the curtain of his compartment window and looked out onto a circus. Loping alongside the train was a parallel train of camels, a dozen or more of the gangling beasts, their fencepost teeth bared as they yelped and brayed and groaned, lips curled in great ropy sneers. Bulging gray sacks jogged at their flanks, and swaying atop each mount was a swarthy, bearded rider in flowing robes, with a snarl to rival that of his

So this is Kazakhstan, thought Aksyonov, who before this trip never had been farther east than the outskirts of Moscow, the home of a maiden aunt who baked fine tarts. He breathed the choking dust and coughed with enthusiasm; he was too young to be uncomfortable. One of the camel drivers noticed him gawking, grinned, and raised a shaggy fist in a gesture so rude that Aksyonov hastily dropped the curtain and sat back, fingering his own suddenly inadequate beard. He rummaged in his canvas bag for the worn

copy of Perelman's Interplanetary Travels, which he opened at random and began to read, though he could have recited the passage with his eyes closed. He soon nodded off again, and in his dreams he was a magnificent bronze fighter of the desert, who brandished a scimitar to defy the rockets that split the sky.

No conductor, no fellow passenger disturbed his sleep, for Evgeny Aksyonov was bound for a place that did not officially exist, to meet a man who officially had no name. Access to such non-places and non-people was strictly regulated, and so Aksyonov was the only passenger aboard the train.

"Come," the soldier on the platform said, after he peered from Aksyonov's face to his photo and back again just enough to make Aksyonov nervous.

"The Chief Designer expects you."
For fifteen minutes or more, he drove Aksyonov along a freshly paved highway so wide and straight it seemed inevitable, past a series of construction sites where the hollow outlines of immense buildings rose from

struction sites where the hollow outlines of immense buildings rose from pits and heaps of dirt. Gangs of workers swarmed about. Atop one pile of earth, three armed soldiers kept watch: the men swinging picks below must be zeks, political prisoners, the Motherland's most menial laborers. A gleaming rail spur crossed and recrossed the roda, and Aksyonov began to brace himself for each intersection, because the driver did not slow down. Some completed buildings looked like administrative offices, others like army barracks. Behind one barracks were more inviting dwellings, a half-dozen yurks. A couple of Kazakh men were in the process of rolling a seventh into place, as lift iwere a great hide-covered hoop.

The driver abandoned Askyonov without speech or ceremony at the concrete lip of a kilometer-wide pit. Aksyonov looked down sixty meters along the steep causeway that would channel the rocket blasts. He shivered and retreated from the edge of the launch pad, a tremendous concrete shelf hundreds of meters square. No amount of rocket research would make him fond of heights. Above him soared three empty gantries, thirty-meter talons that would close not he rocket and hold it fisst until liftoff.

Would close on the rocker and note it has them mon. Hundreds of workers dashed about the pad. Some drove small electric carts, some clambered along scaffolds that reached into the tips of the gantries and the depths of the pit. Among them were many Kazakh men, distinguishable even at a distance by their felt skulleaps. Amid all this activity, Aksyonov tried to look as knowledgeable and useful as possible while he guarded his luwgage and felt homesick.

As he considered getting out his book, he was jolted nearly off his feet by a voice that boomed and echoed from everywhere; to left, to right, the pit.

the sky.

"Testing Testing. One two three Tsiolkovsky Tsiolkovsky Tsiolkovsky." Then came several prolonged and deafening blasts, like gusts into a microphone. Aksyonov clapped his hands over his ears. No one else in the

whole anthill took any visible notice of the racket.
"Hello. Hello. "The words rolled across the concrete in waves and
rattled Aksyonov to the bone. "Can you hear me? Eh? Hello? I'm asking
you—you there with the beard. Yes, you, the one doing no work. Can you

hear me?"

Aksyonov released his ears and looked about the launch pad. Unsure where to direct his response, he waved both hands high above his head.

"Good," the voice said. "Wait there, I'll be right up—"The next words were

swallowed in a spasm of rattling coughs that echoed off the sides of the pit and seemed to well up from the earth itself. Aksyonov covered his ears again. In mid-cough, the amplification stopped, and all that fearsome reverberation contracted to a single small voice that hacked and cleared its throat far across the concrete pad.

Aksyonov turned to see a man step out of an elevator set into one of the support pillars. The man walked toward Aksyonov, swabbed his mouth with a handkerchief: heavy-set, fiftyish, with low, thick eyebrows and a brilliant

gaze. He wore an overcoat, though the day was warm for autumn.

"You are Aksyonov," he said, hand extended. He said it as if he had reviewed a list of names in the elevator, and had selected just the right one for the job; if he had said Dyomin or Pilyugin or Molotov, Aksyonov would have answered to it just as readily then and forever, "My name is Sergei Koroley." the older man continued, "but you are unlikely to hear that name again, Here I am only the Chief Designer, or the Chief, Welcome to Baikonur Cosmodrome"

Aksyonov made a little bow, just more than a nod. He had rehearsed his opening and was quite proud of it. "I am honored to meet the man who de-

signed the first Soviet rocket."

"And I am honored to meet the designer of our future ones." Korolev replied, "In collaboration, of course, Space is a collaborative effort, like a nation, or a cathedral. Come with me, please," he added over his shoulder, for he already was well on his way across the pad. Aksyonov grabbed his bags and scrambled to catch up.

"I regret that I have no time to give you a tour of the facility, nor a proper interview. Can you recognize a lie when you hear one? What I just told you was a lie. Truthfully, I do not regret it at all, for I am glad finally to be busy with this launch of the Fellow Traveler-vou read the brief I sent you, yes? Yes. Instead of the usual formalities, you will accompany me on all my rounds in the coming week, from this moment. Will this be satisfactory?"

"Very much so, Comrade Korolev. Er, Comrade Chief."

"Simply Chief will do, Hello, Abish, you mad Kazakh, please keep it out of the pit, will you?" he cried to a waving, grinning man who whizzed past in an electric cart. "You come from the Academy with the highest recommendations, Comrade Aksyonov. So high that you actually had a choice of postings, and choice is a rare thing in this new century. Tell me, why did you choose Baikonur? Do you nurse some abiding love for sand?"

"Primarily, Comrade-er, Chief-I came here to work with you." He awaited some response, got none, and went on. "Also, Comrade Shandarin's design group involves-well, let us say much more conventional applications of rocketry? Your work at Baikonur, what little I could learn of it.

seemed much more interesting."

"I understand," the Chief said. He led the way down a metal spiral staircase that clamored at every step. "Comrade Shandarin is like the old Chinaman, who lobs arrows of flying fire at the Mongols. The firepower is greater and greater, but still the Mongols keep coming." At the foot of the reverberating stairs, he turned back and stared at Aksyonov's luggage. "What in the hell are all these things you carry around with you?"

Aksyonov stopped. "Ah, just some . . . just my luggage, Chief." The older man's gaze was unreadable. "My clothes, and books . . . and some personal

items . . . " He faltered.

After some thought, the Chief grunted in mingled assent and surprise

and said, "Books are useful," Turning to the parking lot, he swept one arm back toward the launch pad. "Consider this a personal item, too.

As the two men approached, a large soldier bounded from a car, threw open the back door, and stood at attention. In one hand he held a book, his

place marked with an index finger.

"Thank you, Oleg," the Chief said, and followed Aksyonov in, "Oleg here is reading his way through all the major published works on rocketry and interplanetary travel. What do you think of the Goddard, Oleg?"

"Very interesting, Chief," the soldier said, as he cranked the ignition.

Aksyonov studied the man's thick, shaven neck,

"It is a directed reading," the Chief continued. He pulled a slide rule and a slim notebook from his coat. The shadows of the gantries swept across his face as the car circled the parking lot. "If I must live with an armed escort, I will at least be able to converse civilly with him."

"Would you like to converse now, Chief?" the driver asked.

"No, thank you," said the Chief. His fingers danced across the numbers as Aksyonov looked out the back window at the receding claws of the pad.

III. Baikonur Cosmodrome, 4 October 1957

"Ten."

Ten seconds to go, and no work left to be done. Wonderful, wonderful. Koroley stretched out his less beneath the scarred wooden desk, pulled the mi-

crophone forward, and relaxed as he counted down to zero.

"Nine."

A hundred meters away from this steel-encased concrete bunker, Koroley's voice must be booming across the launch pad. Only the topmost fifteen meters of Old Number Seven would be visible above the icy white fog vented from its liquid-oxygen tanks. Korolev had watched it through every periscope, from every angle, until his cheeks ached from squinting. Now he attempted to watch nothing. His subordinates glanced up from their consoles and radar screens sweaty and white-lipped, like men ridden by nightmares. Let them worry. It was part of the learning experience. Koroley was done with worries-for eight more seconds, anyway. Then the next trial would begin, but in the meantime he would savor his triumph like a crust of bread.

"Eight."

Just weeks before. Comrade Khrushchev had given the go-ahead for an orbital satellite launch-a launch that would impress the world (so he said) with the fearsome might of the Soviet intercontinental ballistic missile. Ha! As if Washington were as easy to reach as orbit. The Party Chairman had played right into the Chief Designer's hands.

Seven.

Granted, Old Number Seven was a remarkable design achievement. Twelve small steering rockets and four strap-on boosters surrounded a central core with twenty separate thrust chambers. The metallurgists, wringing their hands, had told Korolev that his project was doomed, that any single rocket of Soviet make would shatter well before it reached four hundred and fifty thousand kilograms of thrust. Very well, Korolev said: How about two dozen, three dozen smaller rockets clustered together? The union is greater than the individual; was this not the essence of Communism?

"Six"

For hours, Khrushchev and the members of the Politburo, who knew as much about rocketry as any equivalent number of camels, had scampered about the launch pad like Siberian peasants on the loose in Red Square. They wanted to touch everything, like children; Koroley had to be stern with them. And they asked childish questions: How much does it weigh? How fast does it go? How high will it fly? The answers made them even more excited, and Khrushchev was the most excited of all. "This is a great work you do, Comrade Korolev!" he kept saying. The man's cigar ashes were everywhere, and Korolev had not seen his favorite tea glass since.

Comrade Shandarin's objections, though they went unheeded at the Kremlin, were sound. What good was an ICBM that took hours to fuel and launch? One so large that it could be moved only by railway? One that could not maneuver itself to its target, but had to be guided by human controllers on the ground? Worst of all, from Shandarin's standpoint, only the northeastern corner of the United States had anything to fear from Old Number Seven. "Comrade," he intoned, "there are precious few military targets in Maine," The restless old Chinaman could hear the Mongols laughing.

Just a week before, young Aksyonov, at the close of a routine meeting, had loitered about with the constipated expression that signified an important question welling up inside. "Chief, I am confused," the young man said. "The field marshal keeps referring to Old Number Seven as a ballistic missile. Perhaps I am wrong, Chief, but—is Old Number Seven not a rather inefficient design for a ballistic missile?"

"Three. Korolev had beamed at the young man, leaned forward and said, "I do not think that a fair assessment, Comrade Aksyonov. I think it would be more accurate to call Old Number Seven a shitty design for a ballistic missile."

"But." Korolev continued, "it will make a marvelous booster rocket to send men into space."

"One.

"Ignition!"

And so a new star blossomed in the Central Asian desert and rose into the heavens, and even over the thunderous roar of the rockets the others in the command bunker heard the Chief as he threw his head back and laughed.

IV. Steppes north of Baikonur, February 1961

Aksyonov stood beside the Chief, their elbows touching, twin binoculars raised. An eagle wheeled across Aksyonov's portion of sky, and he instinctively turned his head to keep it in view, then caught himself and swung back to focus on the orange parachute as it grew larger and larger-though not quite so large as expected.

Aksyonov lowered his binoculars and checked his map, but the Chief needed no confirmation. "Our peacock has flown off course," he muttered,

and rapped twice on the roof of the cab. The truck roared forward, jolted along the frozen ruts of the dirt lane, and the swaying engineers in the back held on as best they could. Across the vast fields to right and left, toy-sized trucks and ambulances raced along-side. A flock of far-distant sheep surged away from an oncoming truck; the wind carried the honks and bleats for kilometers. Streams of vehicles converged on the drifting orange blossom that was Pyotr Dolgov.

The Chief was on good terms with each of the prospective cosmonauts at Star City, knew their names and families and hobbies and histories, knew in fact everything in their dossiers (and KGB dossiers omitted nothing). The Chief had selected these men from thousands of candidates, in consultation with Khrushchey and, seemingly, half the Polithuro: and desnite all this.

Aksyonov was convinced that the Chief never liked Pyotr Dolgov.

The cosmonaut would sit in the commons for hours waxing his absurd mustache and bragging to everyone about his sexual exploits and his sky-diving expertise. More than five hundred jumps, my friends, and not so much as a sprained ankle. You see this little pocket volume of Lenin? to clet them, just to have something to read on the way down. After the chute is open, there is nothing else to do, you see? Eventually I will have read all the great man's works between earth and sky! How many scholars can say as much?" And so on and so on, as the other cosmonauts hooted and jeered throughout. The Chief, shambling through the commons with a fresh sheaf of problems under his sarn, would eliars at him, and say nothing.

Yet Dolgov was the obvious man to test the East's ejection system, and such a test must be done without delay; what the Chief read in the KGB reports, and in Life magazine, were to be believed. Wee indeed, that long, dry, cold spring, if the Chief caught someone taking a break to smoke a cigarette or place an idle telephone call or, worst of all, take a nap. "Do the Americans and the Germans shirt their jobs, down there in the tropics?" he would yell, waving the latest publicity photographs of the seven toothy spacemen. (The Americans surely would send the first dentist into space.) The Chief found this strange, perpetually sunny launch site, this Cape Canaveral Florida, a locale as exotic as Mars or the moon; to him it was al-ways "down there in the tropics." So Dolgov was hustled through his train-

ing, and the final test was scheduled for late February.

The experiment was simple. Dolgov, suited up, was strapped into a prototype ejection seat inside a full-size mock-up of the East craft. Then the mock-up was carried aloft in the carge bay of one of the big Antonov transports. Thousands of meters above the steppes, the capsule was showed without ceremony out the back of the plane. Once clear, Dolgov pressed the "eject" button. Very simple. Also lunatic, but the schedule at Baikonur Cosmodrome made generous allowances for lunacy.

Dolgov had summed up the procedure: "You feed me to the plane, and the

plane shits me back out!

The Chief had winced, and then nodded his head.

The Chief's truck was not the first to arrive that afternoon. A gaggle of engineers all tried to climb over the tailgate together, and the Chief, impatient, gestured for Aksyonov to help him over the side. The rippling parachut danced sideways, but was anchored by the prone figure on the ground.

A pale soldier with a rifle jogged up to the Chief and said: "It's bad, Comrade Designer. Perhaps you should wait for the—" The Chief, of course, was already past, and Aksyonov checked his stride a bit so as not to outpace the Chief.

Dolgov lay on his back, arms and legs sprawled as no living man would

willingly lie. His helmet, its faceplate shattered, rested at a crazy angle on his shoulders yet still was bolted to the suit.

The Chief stared down at the body and said, "We are fools before men and before God."

Doctors arrived, circling somewhat to maintain a respectful distance from the Chief, and confirmed the obvious: Dolgov's neck was broken. He had done no reading on the way down.

"His helmet must have struck the hatch upon ejection," Aksyonov said, for

he felt he should say something. "He knew the risks," he added.
"Not as well as you, my friend, and certainly not as well as I." The Chief's

"Not as well as you, my friend, and certainly not as well as I."The Chief's voice was deeptively quiet. By now dozens of others had gathered. They looked sick, ashen, aghast, but the Chief's face was taut with fury. Slow and gentle in his rage, he knelt on the frozen ground, reached past the doctors, grasped Dolgov's outflung hands, and folded the arms across the orange cheet so that Dolgov seemed to grasp the cheet storage for his parachute.

"Better that way," the Chief grunted.

He turned and walked back toward the truck, into the cold wind, Aksyonov close behind. As he walked, the Chief pulled from his bulky jacket his notebook and a ball-point pen, shook the pen to get it going (it was of East German make), and began to write, pen plowing across the page, line after line. As he wrote, the Chief stepped over gullies and around rocks without stumbling or looking up. A marmot scampered across his path, practically underfoot. The Chief kept writing.

At the end of the lane, where the earth was permanently churned by the wide turns of tractors, the pale soldier had found a use for his rifle: He held it up horizontally, like a cattle gate, to keep three shriveled peasant women at bay. As the Chief approached, the eldest called: "What is wrong. Com-

rade? What's all the fuss?"

The Chief replied as he passed, without looking up or ceasing to write: "I just broke a young man's neck, Madam, with a slide rule and the stroke of a ren."

The old woman instantly crossed herself, then realized her error and clapped her hands to her face; but Aksyonov and his Chief could not care less, and the soldier was intent on the romping parachute, as rapt and wide-eyed as a child.

V. Baikonur Cosmodrome, 12 April 1961

Frustrated with merely adjusting and rearranging his stubborn pillow. Aksyonov began, shortly past one A.M., to give it a sound thrashing. He pummeled it with his fists, butted it with his head, and slung it into the corner. Aksyonov sat up, sighed, and amused himself for a few minutes by twisting locks of his hair into intricate braids with his left thumb and forefinger, then yanking them free with his right hand. "I am insane," he said aloud. He threw back the bedcovers and swung his bare feet onto the neverwarm wooden floor of the cottage.

The snores droning through the hallway suggested Aksyonov was alone in his sleeplessness. Trousers, shoes, jacket, cap, he imagined they were the bright orange light suit, the asphalt spreader's boots, the leaden bubble of the helmet. He made final adjustments to this fancy (to be sure of the oxygen-nitrogen mix) before he stepped boldly onto the back porch, arms raised in triumph, to claim the concrete walkway and the dusty shrubbery in the

name of World Socialism.

Shaking his head at his foolishness—an option young Gagarin, suited up, alas would not have—aksyonov strolled into the yard. He briefly mistook, for the thousandth time, the horizonal glow of the launch pad for the dawn of a new day, Aksyonov felt his internal compass corkscrew wildly. He closed his eyes and gulped the chill air, hoped to flood himself with calm, but instead thought of a rocket sucking subzero broth from a hose.

Across the garden, a light burned in the kitchen window of the Chief's equally nondescript cottage. Aksyonov walked toward it, since he had nowhere else to walk, and as he neared he became absurdly furtive, stepping with great care, raising his knees high like a prancing coll in zero gravity. He crept into the bushes alongside the house and peered over the sill. As a child, Aksyonov had longed to be a spy; he enjoyed, for example, covertly watching his secretly Orthodox grandfather in prayer. One day he gave himself away with a loud borscht-fed belch, infuriated his grandfather, and launched a family crisis . . . but the Chief he saw, was just reading.

The harsh fluorescent light accented the frostbite scars on the Chief? face—a sign, too, of his weariness. As usual, his right hand supported his chin; his left index finger guided his eyes across and down the page of his notebook. At his elbow were a plate of heese curds and a full glass of treat from which no steam rose. The Chief turned the page, read, turned another. Nothing worth watching; why, then, was Aksyonov so fascinated? Why did he feel such comfort, knowing the Chief Designer sat up late in a lighted kitchen, reading? The Chief's finger moved as methodically as his pen, line after line after—he looked up, not toward the window but toward the back door, and Aksyonov ducked beneath the sill. He heard the scrape of a chair, and heavy footsteps. A wedge of light sliced across the grass.

The Chief whispered: "Gagarin? Hsst! Hello?"

After a pause, as Aksyonov held his breath, the Chief peered around the corner of the house at his assistant crouched in the shrubbery.

"Ah, it's you," the Chief said. "Good. Now perhaps I can get some work

done, in this winter resort for narcoleptics."

Aksyonov was brushing leaves and twigs from his sleeves, trying to formulate an explanation to himself that also would pass muster with the Chief, when his superior respecared. He strode from the house with the notebook under his right arm as his left arm fought for position inside his bulky jacket, which he wore outdoors in all weathers; Aksyonov figured it weighed at least as much as a flight suit. "Now then," the Chief said, and shepherded Aksyonov across the yard by the elbow. "Let us suppose, for the sake of argument and for our sanity that all goes well in the morning. Gazarin goes up, he orbits.

he comes down, he talks to Khrushchev, he talks to his mama, he is the good

Russian boy, yes? Yes. Fine. All well and good. Still he is just Spam in a can." "Spam, Chief?"

The Chief waved his hand. "An American delicacy packed in cans, like caviar. I have read too much Life, perhaps. Stop interrupting. I mean that if good Russian boys like Gagarin are ever to orbit anything other than the Earth, they will need a crab better than that hollowed-out Fellow Traveler over there. They will need to be able to maneuver, to rendezvous with each other, to dock, and so on. Now interrupt me. What modular structure for this new craft, this Union craft, best would combine the strengths of our current craft with the terrible necessities of ..."

For more than an hour the two men tromped across the vard, sometimes talked simultaneously and sometimes not at all, sometimes walked shoulder to shoulder and sometimes stalked each other like duelists, and they snatched diagrams from the air, and chopped them in the grass, and bickered and fought and hated one another and reconciled and embraced and bickered again, all beneath a brilliant starry sky at which they did not even glance; and when they tired, having solved nothing and having discovered about a dozen fresh impossibilities to be somehow faced and broken, they collapsed onto the back porch steps in giddy triumph and elation, and then Aksyonov said, "This is not my cottage.

The Chief looked around, "Nor mine," he said,

Heaped about the porch were bouquets, mostly frugal carnations, brought the previous day, in wave after wave, by dimpled envoys of the Young Communists League.

"This is Gagarin's cottage," Aksyonov whispered. The windows were dark.

In the absolute silence: a faint snore.

"At seven last evening I marched over here and ordered him to go to bed and get a good night's sleep," the Chief murmured, eyes wide, "and he has the nerve to do exactly that." He heaved himself off the steps, rubbed the small of his back, stooped and raked the dirt with his hands. "Help me," he whispered, and began to load his pockets with pebbles.

Aksyonov dropped to hands and knees, "You're right, Chief, Why should we stay up all night, and do all his worrying for him?" He added, under his

breath: "The bastard."

Incredibly, there was Gagarin, out cold, his outline visible in the darkened room thanks to the radium dial of the bedside clock. The two engineers danced back a few paces from the cosmonaut's window and began peppering the pane with handfuls of shot. Was the man deaf, or made of stone-a peasant boy already gone to monument? Ah, there's the light, Crouched behind Gagarin's complementary black government sedan, which he could drive from the middle of nowhere to the edge of nowhere and back again, his tormentors watched the young hero of the Motherland raise the sash, poke out his head, look around.

Gagarin whispered: "Chief?"

No reply, and so the sash came down, and the light went off. The two ruffians stood up, turned solemnly to each other, and began to sputter and fizz with suppressed laughter. Aksyonov drew in a deep breath, and the Chief said, with quiet gravity: "As I prepared to leave the cottage, Gagarin said he had two last questions for me. One, was it not true that he could take a couple of personal items aboard, up to about two hundred grams? Yes, I told him, of course, perhaps a photograph or the like. Then, he made a request. Do you know what that boy wanted to carry into orbit tomorrow? Can you imagine? One of my writing pens."

"Did you give him one?"

The Chief's face spasmed. "Go to bed, Aksyonov," he said.

Aksyonov did, and behind him the Chief Designer leaned on the government-issue sedan and gazed at Yuri Gagarin's darkened bedroom window.

VI. Sunrise One, 12 October 1964

A planet rolled aside to reveal a star, and was itself revealed, lighted as if from within: storm systems roiled; mountain snowfields sparkled; a checkerboard of collective farms wheeled past the window, proof from space that Communism had changed the Earth. Orbital sunrise was the spectacle of a lifetime, yet Cosmonaut Aksyonov was distracted throughout. Cosmo-

naut Aksyonov was upside down.

Should be say something? He knew that at four hundred kilometers above the earth's surface the term "upside down" was meaningless, but the sensation persisted. Even with his eyes closed he felt inverted, as if all the blood was rushing to his head. Surely Yegorov's countless sensors, which studded every crevice and cranny of Aksyonov's body would detect such a thing? For a moment, Aksyonov fancied that the doctor was aware of his upside-downness and just hadn't said anything to spare Aksyonov's feelings. After all, reorienting himself, swapping ends, would be impossible for any of the three crewmen in this cramped space. Here there was even less room to maneuver than in the back seat of that ridiculous Italian car in which Aksyonov had ridden three abreast with these very men a month before, on a futile midnight jaunt to Tyuratam for vodka. Even with the ability to unstrap himself and float, could the middle person suddenly cry, "Switch!" and reverse himself at will? No, if Aksyonov was upside down, he would have to stay that way until re-entry. And if he was not upside down, but merely insane, then he might stay that way a lot longer, but he tried not to think about that

"Looks like a slight anomaly in the saline balance," Yegorov said, as he peered at his hand-sized lab kit. The doctor sounded very proud of his salty blood. He had poked and prodded himself with sensors and needles and probes ever since reaching orbit, but found himself lamentably normal-until this final pinprick of blood, which Yegorov had flipped from his finger like a tiny red berry, finally yielded something unearthly, if tedious. Well, fine, Comrade Doctor, Aksyonov wanted to say, why do all your little tests not tell you that we've been upside down for the past two hours? Because if Aksyonov was upside down, then Yegorov and Novikov must be upside down as

well. The thought did not console him.

"How do you feel, Comrade Aksyonov?" Novikov asked.

"I am fine," Aksyonov replied. The pilot smiled in reply and returned his attention to the sealed tube of black current juice that drifted between his outstretched hands. In space as on Earth, Novikov thrilled at small things. Back at the cosmodrome, he had been aghast at Aksyonov's ignorance of Kazakh food. He had prepared for the reluctant engineer lamb strips and noodles, which he called besh barmak, and poured him a foamy mug of fermented kumiss. "You will enjoy space more," the pilot had said, "if you experience more of Earth beforehand. Drink up. It's mare's milk, but what do you care? We are young yet. Drink." Now Novikov was engrossed with the plastic tube, which he batted first with his right hand, then his left, as if he were playing tennis with himself, and the tube tumbled first one way, then another. Aksyonov was fairly certain of the tube's movements to left and right, but what of "up" and "down"? Was the tube, end over end over end, ever truly upside down? Or was it right side up the whole time, as the rest of the capsule revolved around it? Aksyonov wanted to throw up.

"If you aren't going to drink that, how about passing it over?" asked the iolly doctor, who probably wanted to test the effects of black currant juice on his saline levels. "Here you go," replied the equally jolly pilot. He lifted his right hand to let the tube pass beneath it on its way across Aksyonov's

chest. The doctor caught it and said, "Thanks." He popped the lid with his thumb and squeezed it to release a shivering blob of juice. The doctor let go of the tube (which began a slow drift back across the cabin in response to the slight push of his hand upon release), and brought both hands together to clasp the juice at its middle, mashing the blob until it divided, cell-like, into two separate jellies. The doctor raised his head from his couch and allowed one of them to float into his mouth. He licked his lips and said, "Mmm," and nudged the other blob toward Novikov. It drifted across Aksyonov's chest like a dark cloud above a picnic, and was gobbled in its turn; the pilot flicked out his tongue like a frog to catch it.

And these were grown men!

"Would you like some currant juice, Comrade Aksyonov?"
"No, thank you." His mouth tasted like kumiss.

"No, thank you." His mouth tasted like kumiss "Water?"

"Coffee?"

"Orange juice?"
"Apple, perhaps?"

"Thank you, I'm not thirsty. Thanks all the same." He envisioned a headsized glob of vomit bouncing about the cabin as its three captives flinched and moaned beneath, like schoolchildren trapped in a room with a bat. Aksyonov took deep breaths of the canned air and tried to focus on the fireflies outside the window.

"Comrade Aksyonov has the spacesickness," Yegorov murmured, as if he and Novikov were exchanging confidences.

"I do not!" Aksyonov cried.

"You have lain there like a fish for an hour," the doctor continued. "Pulse rate normal, respiration normal, eye movements slightly accelerated but otherwise normal, you check out normal on all my readouts, and frankly you look like hell."

"Everybody gets it," Novikov said. "Titov, Nikolayev, Popovich, Bykovsky,

Tereshkova-all had it, in some degree or other."

"Gagarin, too?" Aksyonov asked.

"No, Gagarin didn't get it."

"Do you have it?"

"Ah, no, actually I don't. But I've been a pilot for years, you know. Fighter training and so on."
"I have it a little I think "Vegorov said "Just some giddiness. The American State of the State of the American State of the St

"I have it a little, I think," Yegorov said. "Just some giddiness. The American have reported it, too. We think it may have something to do with the effect of weightlessness on the inner ear." The doctor had published a number of important papers on the inner ear, and Aksyonov was surprised he had waited so long to bring up that remarkable organ. "Do you feel disoriented, spatially confused in any way?"

"Yes," Aksyonov sighed. "I feel as if I'm upside down. I have trouble focusing my eyes. The instruments swim around a little when I try to read them. And I'm a bit queasy as well."

"Are you going to throw up?" Novikov asked.

"No!" Aksyonov retorted, and began to feel better.

"This is very interesting," Yegorov said, making notes. "You must report

all your symptoms as they occur."

"I am not reporting, I am complaining," Aksyonov said. "And yet I am a crew member aboard the world's first three-man spacecraft, on the highest manned orbit in history. Forgive me, comrades." Even as he said it, he winced to call the Sunrise a "three-man spacecraft," It was the same old East capsule minus reserve parachute and ejection system, a risky modification that left just enough room to wedge in a third narrow couch. No room for pressure suits, either, so they all wore grey coveralls, paper-thin jackets, and sneakers. "A shirtsleeve flight," [Khrushchev had called it, when he presented his demands to the Chief at the Chairman's Black Sea villa the summer before.

The Chief's rage had percolated all the way back to Baikonur, by the time he relayed his orders to Aksyonov, he was in a near-frenzy, stomping about the design lab and slamming his fist on the work tables to punctuate his denunciations. So now we must suspend work on the Union, delay all our progress toward the moon, so that Khrushchev can taunt the Americans, 'Ha hal Your Gemini's ends up two men, but our Sunrise sends up three! We win again!' "Pencils and rulers rattled as the great fist came down.

Aksyonov shook his head over the sketches. "It will be three brave cosmonauts who will board this craft," he said.

"Not three cosmonauts at all," the Chief replied. I have not yet told you the worst part. The Surrise will carry aloft one trained cosmonaut and two untrained 'civilians'—one a doctor, one a scientist or engineer. This way Khrushchev can brag of the first scientific laboratory in space. He said, If you cannot build this for me, if you cannot continue to advance our glorious space program, then I assure you that Comrade Shandarin can." The Chief paced back down the table to brood over the diagrams. Full what engineer, I ask you, would be noble and courageous and foolish and short enough to climb into such a bucket without a rifle at his back?"

At that moment, Aksyonov knew his answer. He had seen the Chief shudder at the mention of Shandarin's name. But Aksyonov spent a week working up the nerve to pass his answer on to the Chief, and then another couple

of weeks persuading him.

The same evening the Chief finally relented, Aksyonov helped him write a long and detailed letter to be sent by special courier to the Politburo member most familiar with the Baikonur program—the former Kazakhstan party secretary, Comrade Brezhnev. The report detailed Comrade Khrushchev's increasing interference with the Soviet space program, and implied (without quite saying so) that ignominious disaster loomed if more rational and far-sighted leaders did not intervene. While the Chief laboriously pecked away at the final draft, for even his two-fingered typing was superior to Aksyonov's, the Motherland's newest cosmonaut sketched a cartoon called "How To Send A Bureaucrat Into Orbit." It showed Khrushchev being shoehorned into a cannon with a crowbar.

"Look out there," Novikov said.

The Sunrise's porthole twinkled with hundreds of tiny lights, each lasting less than a second. A shimmering envelope of ice crystals surrounded the hurtling spacecraft.

"I heard and read descriptions of the fireflies," Aksyonov said, "but I nev-

er dreamed how beautiful they are."

"Are you still upside down, Comrade?" the doctor asked him.

Aksyonov laughed. "Yes, but if you can stand it so can I. If I were not as upside down as you two, I would not be here, would I?"
"Well, the Chief will turn us all upside down," Novikov said, "if we don't get some more chores done before we fly back into radio range. We have

transitional spectra to photograph, ion fluxes and background radiation to measure, and of course spontaneous greetings to prepare for our Olympic team in Tokyo, Yegorov, perhaps you and our topsy-turvy friend could rehearse the script while I see to these instruments.

"Right away, Comrade, Let me just finish these medical notes. . . ."

Aksyonov squinted at Yegorov's writing hand. "Comrade Doctor," he said. "Is that the pen you typically use for note-taking? In zero gravity, it seems prone to skip.

Yegorov stopped writing, opened his mouth, closed it again, and cast Aksyonov a sheepish glance. "This is not my usual pen, Comrade. I bor-

rowed it for the flight. It is one of the Chief's pens."

His crewmates regarded the doctor for a few seconds. Then Novikov chuckled and reached into a pocket. "Don't be ashamed, Comrade Doctor, Look. I myself asked for one of the great man's handkerchiefs."

After a pause, pilot and doctor both looked at the engineer who lay between them

"For my part," Aksyonov said, "I have a note he gave me just before launch." He pulled the small square of paper from his jacket and began to unfold it. "I see no harm in sharing it with you-" Novikov tapped his hand.

"No, Comrade," he said. "That note is for you, and not for us. Maybe at some point we will need to hear it, and then you may read it to us, but not now. Not now. Now we have our orders. Comrades. Shall we get to work?"

VII. Sunrise Two. 18 March 1965

"I can't do it. Come in, Baikonur. I can't do it."

"Leonov, this is the Chief. What did you say? Please repeat."

"I can't get back into the airlock, Chief."

"Explain."

"My pressure suit, sir. It has swollen, as we expected, because of the unequal stresses on the materials . . . but it has swollen much more than we anticipated, in only a ten-minute spacewalk, I didn't realize how much, until just now, when I tried to bend to enter the hatch. It's becoming rigid, Chief, like a suit of armor, or a statue. Please advise."

"I understand, Leonov. This is an inconvenience, nothing more. Have you tried to maneuver with the handholds? Grasp them and haul yourself forward headfirst. Stretch out and pull yourself along like a log. I know it's awkward, but clipping the television camera to the hull was awkward, too. remember?"

"All right. I will try, Chief."

"You're doing fine, Leonov. You have executed a flawless extra-vehicular activity. Your suit may be stiff, but you are more free at this moment than any other man who has ever lived, and we all envy you, Leonov. Report when you are ready. Baikonur out."

"Uh, Baikonur, this is Leonov. Come in, Baikonur. Come in, Chief."

"Yes, Leonov, this is the Chief, What news?"

"No news yet, Chief, I'm still trying. It's hard, because my arms are getting stiff, too, but I'm trying. Chief, could you perhaps keep talking? It helps me focus. Believe it or not, there are a lot of distractions up here. I keep wanting to look at the Earth, at the clouds over the Volga. Or the other way, at the blackness—although it's really a dark blue, and it's beautiful too, in its own way. If you keep talking, Chief, it will help keep me on task."

"Why, Leonov. Am I such an evil boss that you fear my wrath even five hundred kilometers above? Everyone in the control room is smiling and nodding his head, Leonov, so everyone here agrees with you. I am quite the dictator, I see. Well, I will I try to mend my ways. When you return I will be a new man, yes? Yes. I will be only the proud uncle to my young friend Leonov. How are you doing, Leonov?"

"I'm still trying, Chief. Keep talking."

"Leonov, do you remember when I came to your cottage last night to tell you to go to bed? I also told you that we cannot foresee every problem on the ground, that your job and pilot Belyayev's job is to step in to deal with the problems that we haven't foreseen down here, and that we have complete faith in your abilities to do this. Well, here is just such a problem as I was talking about, Leonov. This is the unforeseen that was foreseen. And there you are to solve it for us. How are you doing, Leonov? Please report."

"Chief... I'm still out here, and I don't think the handholds will be much use. It's not just that I can't bend in the middle; my arms and legs are sticking out, too, and the hatch is only a meter wide. And the suit is stiffening even as we speak. Maneuvering is like trying to swim without moving my

arms and legs. Please advise."

Thank you, Leonov, we better understand your situation now. We will advise you in a moment. Just now I am going to speak with your pilot, all right? I will switch over very briefly, then confer with my comrades in the control room, then come back to you. If you like, you may admire the Volga. You will be able to describe it all the more vividly when you return."

"All right, Chief."

"Baikonur out.... Sunrise Two, this is the Chief. Come in, Sunrise Two."
"Chief, this is Sunrise Two. Do you want me to go out and get him?"

"Negative, Belyayev, negative. You are to stay inside until you receive contrary orders from me. I cannot have both my cosmonauts waltzing together outside the craft until we are sure we can get both of you back inside. Do you understand, Belyayev?"

"I understand, Chief. What shall I do?"

"Do as you are doing, and carry out your orders, and prepare yourself to exit if I say the word. Baikonur out."

"Leonov, this is the Chief. Any progress?"

"No, Chief . . . but the sunlight on the Black Sea is remarkable."

"And so are you, friend Leonov, and so are you. Listen, Leonov, we have found a way to make your pressure suit a bit more manageable. Your current air pressure reading is six. If you begin to lessen the air pressure, you should gain some flexibility. Do you understand, Leonov?"

"...Uh, Chief, I do understand, but my pressure's already pretty low relative to the inside of the capsule. How much lower can I go without some real trouble when I get back in? I won't be much good to the mission if I get

the bends, Chief."

"That is true, Leonov, but we have work for you to do inside. We don't pay you to loiter out there and watch the clouds all day. And Comrade Belyayev is lonely for your company."

The Chief Designer

"I don't like this, Chief."

"Nor do we, friend Leonov, nor do we. But you have counted the minutes as attentively as we have, have you not?"

"Yes. Chief."

"And you have noted your oxygen supply as well, correct?"

"Yes, Chief."

"And do you have any alternate courses of action to propose at this time?" "No. Chief."

"Very well, Leonov, begin to adjust your-"

"Chief."

"I am here, Leonov,"

"Is this a group recommendation, Chief? A consensus? Or is it your personal recommendation?"

"... It is my personal recommendation, Leonov. This is the course of action I would take were I in your place. It is the recommendation of the Chief Designer."

"Thank you, Chief, I will do it, Adjust pressure to what level?"

"No target level. Adjust as slowly, as gradually as possible, all the while trying to flex your arms and legs and bend your waist. We want you through the lock with the highest suit pressure possible. Understood?"

"Understood, Chief. Beginning to reduce suit pressure . . .

"Five and a half, no good, continuing. . . .

"Five, I do see some improvement in mobility, Chief, repeat, some improvement, but I am still a slow old man up here, continuing....

"Four and a half, I'm doing my best, trying to wedge myself in there, but I can't . . . can't quite . . . shall I continue this, Chief?"

"Continue."

to equalize pressure. . . ."

"Continuing to reduce pressure.... Four point twenty-five, I really am not liking this, Chief, I really—Chief! My head and shoulders are inside, I'm pulling myself along. I'm turning around in the airlock—I'm in, Chief? I'm in, in! Hurrah!"

"Excellent, Leonov! Excellent! Can you hear our applause? Well done!" "Shit, that was close. I beg your pardon, Chief. Closing airlock, Preparing

"Any problems to report, Leonov? How are you feeling?"

"No problems, Chief, But Belvavey said I smelled pretty ripe when I came

"Chief, Lyosha here has not sweated so much since his last physics exams."

"He just completed his most difficult physics exam, friend Belyayev, and he passed it with honors, Congratulations, Leonov,"

"Only because you helped me through, Chief."

"Well, I know all about such things, you see. I move like an old man every day. And now, I think, I will let one of these younger fellows talk to you a while, about how we are to get you fellows home again. Chief out."

VIII. Baikonur Cosmodrome, 12 January 1966

Vasily!

Alive! Here! How-?

"Oleg, stop the car! Stop the car, I said!"

After a moment's hesitation, Oleg braked and steered to the shoulder, just beside the ditch that separated the highway from the railroad track and the featureless warehouses beyond, Korolev was out the door before the car quite stopped; he lurched, off balance, until the world quit moving, nearly toppling into the ditch. Some engineer he was, to forget his physics like that.

"Chief, what is it?" Aksyonov called. "What's wrong?"

Ignoring him, Korolev trotted to catch up with the shuffling column of zeks being herded, single file, back toward the launch pad from which he had come. He felt slow, clumsy, like a runner in a nightmare. His legs moved as if knee-deep in roadside slush, though the ground was grey and bare. In this barren land, snow was as rare as rain.

"Chief! Hey!" Car doors slammed. "What's going on?"

Vasily was deed, arely Had to be. No man could survive, what—wenty years in the Kolyma Proyen if he were such a wonder man, he would be no good to work an outdoor construction detail in a Kazakhatan winter. And Vasily had been at least ten years Korolev's senior to begin with. Thus Korolev reasoned as he quickened his pace, his heart racing "Vasily!" he cried. "Wwit"

He started to identify himself, then wondered: Had he ever told Vasily his name? Would Vasily remember his number? Oh luckless day! No matter, no matter, surely Vasily would recognize him—unless eating utterly could transform a man. "Vasily!"

transform a man. vasily!

One of the guards at the rear of the line turned and raised a hand in warning. "No closer!" he cried. None of the fifty-odd prisoners looked around; all curiosity had been socured from them, Korolev knew, long long ago. The other guard unstrapped his rifle.

"Halt the line!" boomed Oleg, as he sprinted past Korolev. "It is the will of

the Chief Designer! Halt the line!"

The first guard blew a whistle, and the prisoners immediately looked like men who had not walked or moved in years, who had aged in all weathers beside the road, and who would not deign to fall even when they died.

Puffing, Korolev leaned on Aksyonov's shoulder.

"Chief, please. How many more heart attacks do you want? Calm down."
Hands on hips, glaring downward at them, Oleg was trying to intimidate

the guards. "Do you have a man named Vasily in this detail?"

The guards, impervious, shrugged. 'How should we know, Comrade?''
Oleg began to pace the line, calling the name at intervals. Korolev shook
his head. The fortunate man obviously had no experience with political prisoners—himself excepted, of course. 'Let's follow Oleg,'' Korolev told Aksyonov, ''Slowly, 'mind you—slowly.''

"That was my plan," Aksyonov said.

Korolev couldn't remember now whether the face he had seen from the car window had been in the back of the line, the front, or the middle (or in a cloud? a clump of weeds?), so he peered at all the faces as he overtook them. So far no glimmer, no trace, no Vasily; but as he walked on, another, more terrible recognition dawned. These men all looked slike. The vacant stares, the beards, the scars and creases of misery—they could all be brothers. How would anyone be able to distinguish among them?

Korolev stopped at the head of the line, smiled weakly at the guard he faced there, then looked back along the column. "I am sorry," Korolev said.
"Do you all understand? I am genuinely sorry, My friends, I think I will rest

a moment." With the help of Aksyonov and Oleg, he lowered himself onto

the weedy rim of the ditch, as weary as the engines of the stars.

"Carry on." Oleg barked, and at the whistle the sad processional shuddered into motion again. The guards eyed Korolev as they passed. He heard them begin to mutter about how nutty the scientists get, with their heads in outer space all the time. Korolev started to laugh, then was seized with his worst coughing fit of the day.

"I will bring the car," Oleg said.

When the coughs had passed, Korolev glanced sideways at Aksyonov, "Your Chief is a wreck," he said. "Do you want a transfer?"

"Sure, Chief, send me to the moon, Who's this Vasily?"

Korolev shook his head, drew his coat a bit closer around him. "Someone I knew many years ago. In the camps."

"The Kolyma."

"Yes. He collapsed at mealtime, was dragged away. I got a piece of his bread, and enjoyed it. Maybe I'm guilty for that, I don't know. I assumed he was dead. I suppose he is dead. Yes, I'm sure he is."

"He died, you lived. That's nothing to feel guilty about, Chief. Have you

brooded about Vasily all this time?"

Korolev smiled. "Comrade, I had not thought about Vasily once, not in twenty years, until a few moments ago in the car. And then it all came back. Like a comet that has been away for so long that no one remembers it, eh? Yet all the while it is on track out there, makes its great loop, comes round again. As dependable as Oleg, here. Yes, thank you, Oleg. No, stay put, we'll be right over. Aksyonov."

"Yes. Chief?"

"Listen to me. Tonight I go to Moscow, back into the hospital. I hope to be back in a week, maybe two. The Health Minister has scheduled an operation for me, a hemorrhoid operation, I've had problems down there."

"Is it serious?"

"Serious, It's my ass, isn't it? Yes, my ass is serious. Stop interrupting. Do you still have your copy of Tsiolkovsky's book, of Exploration of Cosmic Space-"

"-with Reactive Devices, ves. Chief, you know I do."

"While I am gone, I want you to read it over again. Every word of it. Study every diagram. Read it as if it were the first time, as if there were no satellites, no Gagarin, no spacewalk, no cosmonauts, and see where your ideas take you. And I, I will do the same. For I have been too old lately, Aksyonov, and turning you old along with me, I'm afraid; but when I return, we will talk about all these new wonders we have envisioned, and we will savor the sky and be astonished again."

IX. Moscow, 14 January 1966

The Health Minister enjoyed one last cigarette as he leaned against the wall opposite the scrub room. Down the darkened corridor toward the elevators huddled the doctors and nurses who would assist him. They murmured among themselves. One or two looked his way, then avoided his glance.

No doubt they dreaded performing under the scrutiny of the Motherland's most honored physician, and so sought to encourage each other. They did not know their patient's name, but they knew they had not been whisked here after hours to work on any mundane Party apparatchik. They knew that Chairman Brezhnev himself awaited the outcome of the operation; the Health Minister had told them this at the briefing, to impress upon them the importance of this hemorrhoidal procedure, and the honor of their participation in it.

As he watched them now, the Health Minister smiled and shook his head with fond indulgence, smoke pluming. These hard-working men and women did not realize it, but he already had made up his mind to be lenient with them. They would be unusually nervous, with good reason, and he would make allowances when writing his report. He was a servant of the State, yes, but he was also a human being; he could understand, even forgive, the railities of others; he prided himself on this trait, one of his most admirable and practical. He took a final pull, crushed the butt into his coffee cup, and sighed with satisfaction. Too bad these Winstons were so hard to find. . . .

The doctors and nurses now approached him as a shuffling unit, little Dr. Remek in the lead. Stepping away from the wall, the Health Minister, who had been the third tallest dignitary on the reviewing stand at the 1965 May Day parade, drew himself to his full height and smiled down at them, we all ready to wash up, Comrades? Our patient should be prepared by now."

Dr. Remek cleared his tiny throat. He sounded like a noisemaker blown by an asthmatic child. "Comrade Minister, my colleagues and I... with all due respect, sir... we would like to recommend that... that, the gravity of the situation being what it is, that you, or, that is, we, take the added precaution of, of..."

"I am waiting, Dr. Remek," the Minister murmured. His eyes had narrowed during this preamble.

Remek turned to the others with a look of despair. One of the nurses stepped forward and said:

"Comrade Minister, we request that Dr. Vishnevskiy be included on this surgical team."

"Vishnevskiy," the Minister repeated. He should have guessed. The others fidgeted. The nurse (whose name escaped him; he would look it up later) maintained her defiant gaze. "And what could young Dr. Vishnevskiy contribute to these proceedings?"

Now they all found voices.

"He has performed dozens of these operations."

"His technique is flawless, Comrade Minister, you should see him at work."

"He has not been so . . . burdened with administrative duties in recent years as you, Comrade Minister." That was Remek, the toad.

"And surely the welfare of this patient, so vital to the interests of the Revolution, warrants the collaboration of all the finest doctors on the staff."

The Health Minister smiled and raised a hand. "I thank you all for your counsel, it has been duly noted, and will not be forgotten. I cannot detail my reasons for not calling upon Dr. Vishnevskly—for much of the material that crosses my desk, as you know, is classified—but suffice to say that security issues were among my considerations. Besides. My understanding is that young Dr. Vishnevskly's surgical technique, however flashy and attention getting, may be somewhat impaired after the dinner hour. Thank you all again for your concern. After you... comrades."

The team trudged into the scrub room like a detail of zeks. All avoided the Health Minister's gaze except for that one nurse, whose glance was not only contemptuous but dismissive. Fighting his anger, the Minister took a deep breath and consoled himself with the thought that the upstart Vishnevskiy would share none of the credit for this service to the Revolution. No, this personal friend of Brezhnev, this most laudable Communist, would receive a most singular honor. His operation would be personally performed by a full, sitting member of the Politburo. The Health Minister pushed forward, and behind him the swinging doors repeatedly clapped.

The sirens grew louder as Vishnevskiv and his friend the music critic, the last to leave as usual, bantered outside the opera.

"No, no, you will go before I do, my friend," the music critic said. "The moon will need surgeons long before symphonies, and a critic? If we know what's good for us, we critics will all stay down here, where there's so much more to criticize."

Vishnevskiy guffawed and clapped his friend on the back. "Well said, well said, but surely musicians, writers, artists of every stripe should be among the first to walk the lunar landscape. Who better to relay its wonders to the rest of us? The job must not be left to the television cameras, of that I'm sure. The mind reels at the thought."

"We have visitors," said the music critic, suddenly grave.

Roaring up the circular drive were four police motorcycles, sirens wailing. They wheeled to a halt in the gray slush at the foot of the grand staircase.

"Dr. Vishnevskiv?" one of the officers called.

"Yes," he stated. His shoulder ached beneath the clamp of his friend's hand, but he was nonetheless grateful for it. "You are urgently needed in the operating room, Comrade Doctor. We are

here to escort you. The music critic slumped in relief, and Vishnevskiy exhaled a roiling

cloud of breath.

"I thank you, Comrades," he said, "I am ready to go,"

Poor Remek, talking so fast he practically stuttered, briefed him through the intercom as he lathered his arms. Vishnevskiy wasted no time asking questions, enough time had been wasted already, but he wondered: How the hell had intestinal cancer been mistaken for hemorrhoids? And why hadn't they halted the procedure, called for help and more equipment, instead of hacking around in him for hours? Then Remek started babbling about the importance to the State of the poor soul on the table, and Vishnevskiy had his answer.

"The Minister," he snarled.

The damned fool didn't even have the nerve to look up as Vishnevskiy ran into the operating room, though all other heads turned. His run to the table became a trot, then a walk, as he looked at the Health Minister, who moaned softly as he worked, and at the others, bloody hands at their sides. Vishnevskiy looked at the patient, closed his eyes, and controlled himself before he opened them again. He reached up and ripped off the mask.

"I do not operate on dead men." he said.

Outside, alone and glad of the cold, Vishnevskiy looked up and thought, ah moon, what do you know of slaughter, and pride, and folly? Better we should stay where we are.

X. Baikonur Cosmodrome, February 1966

At first, Aksyonov pretended he didn't hear the knocking. He figured it was only Shandarin again, with a freshly typed sheet of demands. Shandarin liked to deliver his memos in person so that he could watch his team leaders read them, gauge their reactions, and satisfy himself that his wishes were clear. They were clear to Aksyonov even before the first memo, clear at least from the afternoon of the Chief's funeral, when Shandarin had left

the Kremlin wall in Brezhnev's limousine.

The Chief's plan for tanker craft carried into orbit by Old Number Seven had been scrapped. Not spectavaluar enough, not decisive enough, for Shandarin (and not, presumably, for Brezhnev either). Instead, Shandarin's own giant Proton, designed to carry hundred-megaton warheads, would blast cosmonauts into a loop around the moon in October 1967; the Proton's save theoretical descendant, Shandarin's terrished G-1, would launch the redesigned Union spacecraft toward a moon landing the following year. As for the Chief's meticulous series of incremental test flights to check out the new Union's capabilities one at a time, Shandarin had crossed out most of them so that a totally revamped craft could be shot into orbit in a year—or less.

When Aksyonov first realized the enormity of what the Chief's successor intended to do, he was too dumbfounded even to be angry. Instead he laughed. Chuckling, Aksyonov spun the dossier down the conference table, so that pages whirled out of the folder like petals, and said. "Impossible."

The folder stopped in front of Shandarin, who sat at the far end of the long table, in what he had wrongly assumed was the Chief's chair. (The Chief had paced during meetings, never sat anywhere, and where the other sat, or whether they sat at all, had never been among his concerns.) "Impossible." Shandarin snorted. "What nonsense. Have you forgotten, Comrade? Artificial satellites are impossible. A manned spacecraft in orbit is impossible. We have done the impossible for years, Comrade Aksyonov. Now we will do it faster and more efficiently, that's all."

Aksyonov drew from his wallet a clipping from the January 16 edition of Truth. Already two such clippings had fallen to pieces in his hands from repeated unfolding and reading and folding again; fortunately, old Truths were not hard to find, even at Baikonur. "You read this tribute to the Chief

upon his death, did you not, Comrade Shandarin?"

"Of course I read it. You wave it at me every three days; how could I fail to

have read it?"

"To my knowledge," Aksyonov continued, "this was the first time the Chief's name ever appeared in print. Think of that. For twenty, no, thirty years he was the guiding genius of the Soviet space program—even before the government knew it had a space program. Yet how many Soviets knew his name? How many of the disciples who worked beside him every day knew his name? How many of the cosmonauts who entrusted their lives to him knew his name? And did the Chief care? Did he mind that he was a man without a name?"

"What is your point, Aksyonov? I have work to do today, if you do not."

"I am making no point, Comrade Shandarin. You are the man who makes points—very clear and unequivocal points. No, I just wonder whether your goal is to put a man on the face of the moon, or to put your name on the front page of Truth, and how many of us nameless men you will sacrifice to get it there."

Shandarin stood, smiled, gathered his papers, and slowly walked the length of the table. He patted Aksyonov on the shoulder, leaned forward until their noses practically touched, and said in a warm and fatherly voice, "Not so very many years ago, I commanded a far more efficient operation, where I occasionally had my workers shot for insolence."

"How strange, then, that you didn't shoot the Chief when you had the chance," Aksyonov replied, "since he always knew you to be a tyrant and a fool. I am surprised you were not strong enough to bury his body in the

snow of the gulag, and lead us all into space on your own.

And so Aksyonov felt no real reason to answer the door. He just sat on the swaybacked couch, read the clipping again, and let the man knock, Knock, knock! Yet this didn't sound like Shandarin's impatient rap, nor the idiot pounding of the KGB. This was the gentle, incessant knock of someone who would stand there on the porch of the cottage until doomsday, secure in the faith that his knocking was not in vain. Growling, Aksyonov kicked through the litter of dirty clothes (what was the point of laundry now?) and flung open the door.

A woman.

A wide, heavy-set, attractive woman of about fifty, graving hair tied behind in a youthful braid. Large nose and deep brown eyes. She cradled in her arms a bulky cardboard box bound with masking tape. Behind her, at the foot of the drive, Oleg stood at attention beside the car.

Aksyonov blinked at both of them in wonderment.

"Comrade Aksyonov? I apologize for disturbing you so late, but I must return to Moscow tonight. I am Nina Ivanovna Korolev, Sergei Paylovich's wife. The Chief's wife.

"His wife!" Aksyonov exclaimed.

She stooped and set the box onto the porch at his feet. Straightening, she smiled a thin, sad smile. "You need not struggle to conceal your astonishment, Comrade. I know that my husband never spoke of me here. Far safer, he said, to keep his family as secret as possible."

"His family!" Next the sun and the moon would wrestle for dominion of

the sky.

"I am sure I know much more about you than you about me, Comrade Aksyonov. My husband spoke of you whenever he came to Moscow. He said he had more faith in you than in any rocket he had ever designed." She nodded at the box and said, "These are a few of his personal effects. I am sure he would have wanted you to have them."

"Personal effects," Aksyonov said, slumped against the doorway. He felt increasingly redundant in this conversation. "Please, forgive my manners, Nina Ivanovna. Won't you come inside, out of the cold? Oleg, you come, too.

Please, I will brew some tea-"

She shook her head. "I am sorry, but I must go. The helicopter waits. Goodbye, Comrade Aksyonov, Thank you for your help to my husband," She moved with remarkable grace for a large woman, and was halfway down the steps before he could react.

"Wait!" he cried.

She did, though she did not look around. She faced the frozen yard, and

trembled.

"Please, I don't understand. There's so much I want to ask you, about your family, and about the Chief-I mean, about Sergei Pavlovich. He was such a tremendous influence on me, you see, on so many of us, and I know so little

about him. So little. Next to nothing, really. And I could tell you things. I could tell you what he was like here, what he used to do and say, how the cosmonauts all venerated him. you have no idea. You should know all this.

Come inside, please. We have so much to talk about-"

"We have nothing to talk about," she said as she faced him. "Don't you see? Can't you imagine how difficult it was for me to come here? To see this place that destroyed my husband-that destroyed me? Year after year after year, Comrade Aksyonov, about once a month, with no warning whatsoever, my telephone would ring, and I would answer it immediately for our apartment is small and I sleep but lightly, and then I would go downstairs and watch my husband climb out of a car full of soldiers—so slowly oh, so slowly he moved, like an old, old man-I never saw him when he wasn't exhausted. He and I would sit at the foot of the stairs and talk for an hour or more, until he had gathered the strength to climb to the bedroom and go to sleep. And the next morning the car full of soldiers would still be out there. and it would take him away again. Back to this place. Back to all of you. Do you understand, Comrade Aksyonov, why I do not rush to embrace you now?" She walked a few paces into the yard, then added: "When my husband was sent to Siberia, so many years ago, I was like a madwoman, I thought he was lost to me, that he would be in prison for the rest of his life. And I was right, Comrade, I was right,"

"Your husband was a free man," Aksyonov said.

"I have no control over what you believe," Nina Ivanovna said. She nodded toward the package on the porch. "I have given you all that I can give you. And now I must go home."

She walked to the car, where Oleg held open the passenger door. Just before she stepped inside, she called out, "Try to get some sleep, Comrade Aksvonov. My husband always worried because you worked so late."

Aksyonov knelt beside the package, rubbed his hands across the smooth surfaces of tape, looking for a seam, as the car sputtered to life and Oleg and Nina Ivanovna drove away. He never saw either of them again.

XI. Baikonur Cosmodrome, 24 April 1967

Aksyonov would not have thought it possible: Somehow the two soldiers who flanked the control-room door, already as erect and expressionless as twin gantries, managed to snap to attention as the prime minister walked in. Every controller, engineer, and technician in the room stood as well, though they had not been trained in it and were far less impressive than the soldiers.

The prime minister wore a well-tailored black suit that looked nondescript beside the uniform of his escort, General Zeldovich, who was splendid in medals and buttons and epaulets. The prime minister nodded at everyone and patted the air. With a collective exhalation, everyone sat and returned to their tasks, except for Aksyonov and Shandarin, who joined the

dignitaries in the back of the room.

Aksyonov was aware of the sweaty moons beneath his own arms, of the hair he had neither washed nor combed in more than a day, and he cushed himself for such thoughts. What must poor Novikov look like at this ment? Novikov, who had cooked him best harmak; Novikov, who had cooked him best harmak; Novikov, who had told him it was no dishonor to be sick in space; Novikov now was in an orbital hell, somersaulting in vomit and terror.

"This is a great honor, Comrade Prime Minister," Shandarin said, and shook his hand a bit too vigorously. "Your historic contribution to this mis-

sion will do wonders for Comrade Novikov's performance."

"Whatever I can do to help, Comrade," the prime minister said, and gently freed his hand. He surveyed the descending tiers of desks and instrument panels, the vast display screens on the far wall, the litter of sandwich wrappers and tea glassee underfoot, the samovar in the corner His nose wrincled slightly. The sweat of unwashed men, Aksynov wondered, or the far worse stink of desperation? "Please show me to my microphone, and tell me the current situation," the prime minister said. "In layman's terms, mind

Shandarin rolled his own plush chair back over Aksyonov's toes and gestured for the prime minister to sit. He had cleared his work station of everything but a microphone and a small gold-plated bust of Lenin, which the prime minister pushed aside to open his leather briefcase. Shandarin

glanced at Aksyonov, who recited on cue:

"Comrade Novikov is in his eighteenth orbit of the Earth. Because of a failed solar panel, his craft is critically low on electrical power, so that most of its automatic systems are inoperable. He has attempted for some time to manually orient the craft for re-entry, thus far without success. Even now we are talkine him through the process."

The prime minister had opened a manila file folder containing many closely typed pages. Aksyonov edged closer, tried to read over the prime minister's shoulder. "About an hour ago," Aksyonov continued, "Novikov sooke to his wife on the radio. Understandably she was quite unset."

The prime minister glanced around at the general, his papers poised.

"The woman we passed in the corridor?"

The general nodded.

"I assumed she was one of the female cosmonauts," the prime minister said.

The general looked uncomfortable and said, "No, Comrade." All the other women cosmonauts-in-training had, of course, been sent home after Valentina Tereshkova landed safely four years earlier. Tereshkova herself had been sent on a worldwide lecture tour, her three-day space career at an end.

"Good," the prime minister said. "I had wondered at such a womanly outburst from a trained pilot." The general tugged at his white mustache as if

to say yes, yes, just so. "Proceed, Comrade."

"One more thing, Comrade Prime Minister," Aksyonov continued. "The craft's shortwave radio failed very early in the flight. We have been using the craft's ultra-shortwave backup radio, but because electrical power is in such short supply, even that is beginning to fade. Much of your message to

the cosmonaut, in short, may be lost in static and garble."

The prime minister smiled for the first time. "You may know quite a lot about spaceflight, Comrade," he said, "but I know a good bit about speechees. And I assure you, the individual sentences are never as important as the cumulative whole—as Comrade Castro has demonstrated, eh, Comrade General?" He and the general chuckled, and Shandarin, after a pause, joined them. Assynone did not. He was scanning the text of the prime minister's welcome-home address to honor Jakov Novikov, in which each reference to the cosmonaut as "he" and "his "had been amended, in a neat and precise hand, to "you" and "your." Then the prime minister laid his hand across the sheet.

"Do you have any questions, Comrade Prime Minister?" Shandarin asked.
"Just one," the prime minister said, looking at Aksyonov. "Does Novikov's
wife have reason to weep?"

Shandarin opened his mouth to reply, but Aksyonov was quicker. He said: "The Union One is out of control."

The prime minister, the general, Shandarin, all regarded him. The whole room was hushed by this heresy, though none but the nearest tier of controllers could have overheard.

Several tiers below, one man read aloud a list of numbers for another man to double-check. The numbers were long, with many decimal places, and their progress was slow. "Let's just start over," one of the men said.

"I see," the prime minister said, as he rubbed his eyes. He swiveled to face

forward, squared the edges of his speech, and said, "I am ready. Comrade." Glaring at Aksyonov, Shandarin flipped a switch at the base of the prime minister's antiquated desk microphone and adjusted his own compact headset, which had been deemed too complicated for the visitor. "Speakers, please," Shandarin said.

Amplified static filled the room. Aksyonov sat at his reassuringly cluttered station and focused on the blinking dot that marked Novikov's position on a world map—as if the cosmonaut's border crossings, one every few minutes, mattered to him now.

"Union One, this is Baikonur. Union One, this is Baikonur, can you hear me, Union One?" More static. "Union One, this is Baikonur. Please respond

if you can hear me, Union One."

More static, then: "I'm doing it, I'm doing it, but it doesn't work. Do you hear me, Baikonur? It doesn't work!" More static.

Shandarin raised his eyebrows at the flight director, who said, "We asked him to try the automatic stabilizers again."

Aksyonov shook his head. How many different ways could a man push

the same button? "Union One, this is Baikonur. We hear you, and we continue to work on the problem. But now we have another visitor for you, Union One, a very important visitor who wants to speak with you. Here beside me is the prime minister of the Soviet Union. Do you understand, Union One?"

More static. Then: "The prime minister?"

"Yes, Union One. I ask for your attention. The next voice you hear will be that of the prime minister, with a personal message of tribute." He nodded at the prime minister, who nodded in return, leaned close enough to the microphone to kiss it, and shouted:

"Greetings, Jakov Novikov, loyal son of our Motherland, wonderful Communist, courageous explorer of space, comrade in arms, and friend. . . ."

Responding to Shandarin's signals, Aksyonov and the team leaders joined

him and the general in the back of the room.

"Obviously Novikov will be unable to maneuver the craft into the best trajectory for re-entry," Shandarin said. "The best he can do is turn the craft so that the heat shield faces the Earth, and then fire the retro-rockets. Discussion?"

Everyone spoke at once, and after one loud instant muted themselves so as not to disturb the prime minister.

"That's suicide--"

"It's such a narrow window, he'll never—"
"He'll be so far off course, God knows where he'll end up—"

"He'll have no way to control the spin as he comes down-"

"You all have considered this outcome already, I see," Shandarin said.
"Have you also thought of other options? Perhaps Novikov should press
every button in the craft another hundred times, until the radio dies, and
we all go home?"

No one replied. A couple of the men shook their heads. All looked pale and sick.

"Aksyonov, you are uncharacteristically silent. What do you say?"

"I just broke a young man's neck, Madam, with a slide rule and the stroke of a pen." "What?"

Aksyonov pressed the heels of his hands to his forehead. "I am talking to myself, Comrade. I apologize. But much as I hate to admit it, I must agree with you. I see no other oution."

"We're trusting to blind luck!" one man said.

"Perhaps so," Shandarin retorted, "but all the luck in orbit has run out. If any luck remains for this flight, Novikov must find it on re-entry."

The flight director lighted a cigarette and ticked off items on his fingers.

"Solar panel down. Shortwave radio down. Stabilizers down. Thrusters
down. Suppose the retro-rockets are down, too? And the parachute, for that
matter?"

"And the ejection seat?" the general added.

The others looked at the floor. "Comrade General," Aksyonov said, as gently as he could, "on *Union One* there is no ejection seat. You approved the design yourself, Comrade General."

The general began to curse, and the others returned to their stations. Shandarin gripped Aksyonov's upper arm so tightly that the younger man wireed

"I will not forget your support." Shandarin said.

Aksyonov wrenched himself free.

The prime minister glanced up from his text, then faltered before he found his place again. In all future generations, your name will summon the glory of our great Socialist country to new feats—"

Then Novikov's voice, the voice of a man roused from a long trance, ripped

from the speakers:

"What is this bullshit? God damn! God damn! Baikonur! Baikonur! This is *Union One*. Help me, Baikonur!"

The prime minister sat frozen, mouth agape. Shoving past Aksyonov, Shandarin switched on his headset. "This is Baikonur. Union One. Explain

yourself, Union One!"
"Explain myself! Explain myself! Shit shit shit!" More static. "Don't you understand? You've got to do something. I don't want to die. Do you hear me,

Baikonur? I don't want to die!"

A fresh burst of static obliterated his next words, but Aksyonov, like

everyone else in the room, recognized their rhythms; he himself had sobbed

just as uncontrollably at the Chief's funeral.

The cosmonaut's despair seemed to yank something vital from Shandarin. He swayed forward like a falling tree, slammed his hands onto the deskton, and leaned there, looking at nothing.

With a trembling hand, the general switched off the prime minister's mi-

crophone. "Perhaps under the circumstances," he began.

"Yes, of course," the prime minister said, as he swept up his papers and

Andy Duncan

his briefcase. He stood so clumsily that the swivel chair toppled over. The guards, staring at the loudspeakers, paid the prime minister no heed as the general hustled him out the door.

general hustled him out the door.

Shandarin slumped against the console. Still Novikov continued to sob.

Three dozen faces looked up at Shandarin. Several were streaked with

tears.

Aksyonov couldn't stand it. "Say something!" he hissed. "Reassure him. Tell him we have a plan."

He shook Shandarin once, twice. Then he slapped him, a blistering crack that affected Shandarin not at all.

that anected Shandarin not at all.

"I . . . I can't . . . I don't. . . ." Shandarin's voice was a ghastly, slurred imitation of itself

The flight director cried, "For God's sake, talk to him!"

Aksyonov strode to the prime minister's microphone, switched it on, and said:

"Novikov. Novikov. Think of the Chief."

Amid the static, a small voice. "... What...?"

Absolute silence in the control room.

"The Chief Novikov. What would the Chief do?"

"... The Chief ... '

"This is Aksyonov. You remember me, eh? Your upside-down engineer friend? You piloted me into orbit, Novikov, and brought me safely down again, and I complained the whole way—you did it, Novikov. We did it. You and me and the doctor, and the Chief. Do you remember?"

"Yes . . . yes, Comrade . . . I remember."

Taisten to me, Novikov. We have a plan, a plan I believe the Chief would approve of. But first, I want to read you something. You remember the note I carried into space? The note the Chief gave me just before launch? You told me then that I shouldn't read you the note until the proper time had come. Well, I have the note with me now, Novikov. I have carried it in my pocket ever since. Let me unfold it now. . . Here is what it says, Novikov. It says, 'My friend, I am good at spacecraft design because I know just what cosmonauts feel like. I too have been alone and frightened and very far from home, and surrounded by the cold. Soon you will know how this feels, as well. But I survived, my friend, and so will you, and we will continue to design great things together. Signed, the Chief.' Do you understand, Novikov? The Chief knows exactly how you feel.'

A long silence. Aksyonov watched the blinking dot approach Africa. One of the team leaders thrust a printout under his nose and whispered, "The nineteenth orbit is coming up, It's his last chance to—" Aksyonov waved him

away.

The cosmonaut spoke. "The Chief . . . is dead."

"Do you really believe that, Novikov? Do you really for a moment believe that?"

More static, then Novikov slowly and soberly replied: "No, Comrade. No, I don't."

Aksyonov dragged the microphone with him as he sat on the floor. He no longer could see the map, just the Chiefs face, laughing in the darkness outside Gagarin's cottage. "I don't either, Novikov" Aksyonov said, and raked the tears from his eyes. He smiled at the men to left and right who pased him calculations and tissues. "Now listen to me carefully. Here's what we are going to do..."

The Union One plunged through the atmosphere, tumbled end over end like a boy who has lost his sled halfway down the hill, its useless parachute a braided rope behind. The final intelligible radio transmission from its pilot was not the de-

you are guiding me wrongly, you are guiding me wrongly, can't you understand. reported by a U.S. intelligence officer years after the fact, but in fact a lat-

er message, a three-word scrap:

Chief is here Some who have heard the tape do not believe, and say these are not the words.

But the cosmonauts—they believe.

XII. Baikonur Cosmodrome, 22 August 1997

"Excellent!"

"Wonderful!"

"Good job, Peace!"

Cheers, applause, shouts reverberated through the control room. People

hugged, kissed, pounded one another on the back.

One of the small, short-haired women-Lyudmilla? No, Lyudmilla had vacationed in Prague, and now sported a half-dozen earrings in her right ear, all the way up, like the spiral in a notebook-one of them, anyway, was swept into the air by that oaf Atkov, who did not even know how to use a slide rule. They kissed with a smack audible over the din, and then Atkov handed her to the next man, Serebrov? Shatalov? One of the newcomers. She kissed him, too, and squealed like a child.

Aksyonov watched, and said nothing. The engineers were due some good news, some release, and he supposed he could suffer their enthusiasm. For a

while

Aksyonov stood alone on the topmost row at the back of the room, hands clasped behind. He stood rigid, head tilted. At his left elbow was the big standing model of the Peace, its core module likewise tilted, a few degrees off true.

The official mission control room for the Peace was outside Moscow, of course, in the complex named for the Chief. But the entire Russian space program had been on red alert since the June 25 collision-especially Baikonur, where Earth's lone space station had been designed and built.

Onscreen, the three crewmen—Solovyev, Vinogradov, and Mike the American—crouched over their instruments. The image was blurred, but they obviously were grinning like NASA chimps. Mike the American held up both his thumbs as he grimaced, as if being tortured. This was for television's benefit. Yet the crew had reason to be happy, of course. Askyonov looked at his watch. For another few seconds.

"Confirmed, Moscow," Solovyev said, his voice fractured by static. "All electrical circuits working fine. The new hatch is a success. Repeat, a success.

Full power is restored."

A new round of cheers and shrieks in the control room. Aksyonov's lips moved as he counted. Eight. Five. Three. Tolubko strode up the stairs toward him, smiling behind her headset microphone, her heavy evebrows a single dark swath across her pretty face. He nodded at her, then clapped his hands once, twice, solid reports. He would have clapped a third time, but the room was already silent.

"Gentlemen and ladies," he called out. "To your tasks, please." He disdained the public-address system. His reedy quaver was embarrassing enough these days without amplification. Yet he was heard. Look how they bustled into position. The workaday murmur resumed. The party was over.

Sometimes they forgot that Askyonov's role here was purely sentimental. purely ceremonial. Sometimes Aksyonov forgot it himself. Why did his colleagues always jump when he so much as lifted an eyebrow? He would never understand it, no, not if he lived to be two hundred, and had helped build twenty-five space stations, flying all the flags of the world.

"Moscow wants you to say a word," Tolubko said.

Surprised, Aksyonov picked up and put on his headset, which he had wrenched off in a brief moment of jubilation. He cast an inquiring glance at Tolubko. She nodded and mouthed, "You're on."

"Comrades on Peace, this is Aksyonov," he said. He saw Tolubko frown at "comrades." but he couldn't devote the short remainder of his life to preventing Tolubko's frowns, could he? "You have done well. You have made history, comrades, with your indoor space walk." Why did they look so blurred? It was his eyes, Tolubko had assured him. Yet another body part failing. "But now we down here must make some history of our own, if this station is to become fully functional again. Stand by, please. Aksyonov out.'

Why bother? He lacked the Chief's eloquence; he always had. Suddenly weary, he peeled off the headset. Tolubko nodded at her second, Merkys, who nodded in turn and began rattling off suggestions to Moscow, reading from a clipboard that others kept sliding papers onto. Aksyonov set down the headset, too close, it happened, to the edge of the desk. His hand shot out to catch it, but missed. The little plastic hoop tumbled to the floor. A dart in his shoulder; he had strained himself again. Tolubko crouched to retrieve the headset, her skirt riding up, and stood beside him again, reminding him anew that she was taller than he was. She touched his arm.

"Evgeny?" she murmured. "Are you all right?"

"I am fine," he said. He knew he didn't sound convincing. He leaned on the back of a chair. "I am a man of iron, my dear." He nodded toward the model.

"It is the Peace that is falling apart. Worry about her."

"The Peace has power again. Your turn now. Go to bed, Evgeny. Get some rest. Come back fresh tomorrow, when we're ass-deep in crises again." Her smile was an older woman's smile, knowing and known. "We won't repair everything while you're gone. I promise."

As she spoke, she nudged him toward the exit, her arm around his shoulders, and Aksyonov let her. He did not appreciate being lectured, however gently, but he granted Tolubko many liberties. He knew she realized this, took advantage. What of it? The young had the advantage already.

"I think the Georgians are coming by tomorrow," Tolubko continued, as they neared the door. "You should look nice for them. Put on your other

The hell with the Georgians," Aksyonov said. He halted, and Tolubko walked just a little past before compensating. "Don't tell me about the Georgians. If the Georgians hadn't charged us the moon for that automated guidance system, Moscow wouldn't have made us steer the cargo ship in by hand in the first place. No wonder we knocked the station half out of orbit." He waved at the men on the screen. "It ought to be Georgians up there, treading water. Putting out fires." He faltered. snorted. "Georgians!"

Tolubko was smiling. He flushed.

"You have heard all this before," he muttered. "Why don't you interrupt?"
She squeezed his arm. "You told me once, 'No one learns anything by interrupting."

"I tell you many things," he said, "You don't have to listen."

The guard held the door open, waiting. He looked terrified—whether of the old man, or of the young woman, Aksyonov couldn't tell. Maybe he feared being blamed for everything that had happened to the Peace this summer, from the collision onward. The guard in the back of the room, yes! He did it! That was no unreasonable fear in the Soviet Union, or in Yeltsin's Russia, either.

"Tolubko," Merkys called. "Come look at these figures, will you?"

Totolod, merzy stanet. One not at three gutes, win you he heristated, and she pushed, so slightly it was almost a telepathic pulse. "Good night." She squeezed his arm again before striding away. He did not allow himself to watch the back of her head, the sway of her skirt. Ah, Evgeny, he thought. Once you lauwhed at such follies. Now you too, are a foolish old man.

As he passed, the guard asked, "May I radio for an escort, sir?"

"No," he replied, more harshly than he meant.

"As you wish, sir. Good night, sir."

He wanted to say something friendly, to make the guard feel better, but could think of nothing. Was this the guard with the young son, the boy with the scar? Fathers love to be asked about their children. Or was that one of the other guards? Oh, the hell with it. The door had closed anyway, and Aksyonov was alone in the corridor.

As he walked the winding incline he had walked for so many years, Aksyonov passed through three sets of guards and five sets of scanners and ignored them all. The guards saluted, and the scanners beeped, so he must have measured up to the Platonic Aksyonov of their memories. Or close

enough.

Between checkpoints, his footsteps echoed in the dim, deserted halls. The darkness was a budget-cutting measure. Lights were more critical in orbit, and so four-fiths of the overheads in the old sector, mostly used for storage, had been switched off. Aksyonov's colleagues didn't mind. Hadn't Gorbachev, as a farewell gesture, built them a grand new entrance, with a new elevator bank? No longer any need to pass through this back way, this tilted

maze, to reach the surface. Why not leave it to the rats?

But Aksyonov was never in a hurry to reach the surface. He din't like elevators, either, not since Surnise One. And he was secretly pleased to walk through space that others shunned. For people claimed strange experiences down here, in the old sector. To have seen people who, in the next instant, werent there. To have heard voices. The guards had petitioned for fewer hockpoints, consolidated shifts. (And, needless to add these days, more money.) Everyone was uneasy—except the scanners, which never saw anything odd, and Aksyonov, who had roamed these corridors for decades, and who wasn't about to stop now. He hated agreeing with the scanners on anything.

He was walking a little faster these days, though. For the exercise.

He passed the last checkpoint and emerged into a full-face breeze on the

north side of the windswept plaza, in front of Brezhnev's hideous cafeteria. Aksyonov stood in the round mouth of the tunnel, breathed deeply, and stretched his arms, his habit whenever reaching the surface. A foolish habit, there was just as much room for stretching underground. He swung his arms back and forth, hugged himself three times, clap clap clap. Too cloudy for stargazing, but the night was warm, and the breeze was pleasant with the distant scents of wild onions and new-mown hay—a reminder, Aksyonov realized with a scowl, that there had been no launches in, how long? In the old days there was a fine, constant stench. He ripped a tuft of grass from a crack in the pavement, let the blades sift through his fingers. The weeds beneath the plaza survived every attempt at eradication. One night Aksyonov would camp out here, and watch them grow.

He walked across the deserted plaza, his footsteps still echoing. An acoustical trick. His path took him past that rare thing in the former Soviet Union, a new statue. Hands on hips, a rolled blueprint under one arm, Sergei Korolev stood stiff-legged and looked at the sky. As Aksyonov approached, he thought once again: a poor likeness. It favored Lenin. As how

could it not? The sculptor had done only Lenins for thirty years.

As he approached the marble Chief, he began to smell the flowers. More than usual, judging from the smell and from the dark heaps at the base of the statue. At dawn the Kazakhs would clear away the oldest bouquets, but enough would remain to give the plaza its only color, its only mystery.

The Kazakhs picked up just the flowers, and left the rest. Space photos clipped from magazines and crudely framed. Children's plastic toy rockets. Boxes of the shoddy East German pens the Chief had used—as if he had had much choice. About once a month, Aksyonov fetched a crate from the cafeteria and collected them all, carried them to the lost and found. A silly chore, beneath his dignity; he could easily ask the Kazakhs to do it, or anyone else at the complex, for that matter. But Aksyonov had never spoken to anyone at Baikonur about this—this whatever-ti-was—this shrine. And he never intended to. Not even to ask who in the devil kept piling up the stuff in the first place. One toy space station, he knew, he had carted away at least three times.

No one ever offered to help him, either.

As Aksyonov passed the statue, he saw a new shape on the ground. What—? He stopped and gaped, sucked in his breath.

The shape reared up, and Aksyonov cried out. A man was scrambling to

his feet.

"Apologies, good sir," the man said, in Kazakh. "I did not mean to frighten. My apologies."

The man already was trotting away, dusting himself. He might have looked back once, but then he was lost in the darkness of the plaza.

Exhaling, willing his heart to slow, Aksyonov peered at the base of the statue. Had the man left some token of esteem? Aksyonov was quite sure he

had interrupted something.

Had the man really been on his knees, prone on the pavement, facing the

statue? Had he really been in the Muslim attitude of prayer?

Aksyonov hurried across the pavement to the blank-faced Khrushchev

block that housed his rooms. On the stoop, he fumbled for his keys.

Aksyonov had read that in Paris, grieving tourists piled sentimental litter atop the graves of movie actors and pop stars. One expected such things of Paris. But this was Baikonur, sobersided Baikonur. There were no tourists, no adolescents here. The cosmonauts, yes, they were a superstitious, childish lot, always had been—the stories they brought back from the Peace, well! Really. But the engineers, computer programmers, astrophysicists, bureaucrats?

Absurdity—the Chief a pop star!

Unlocked, the door proved to be stuck, as usual; he shouldered it open. Another dart of pain.

Who prays to a pop star?

He closed the door behind him and groped for the switch. With typical foresight, Khrushchev's electricians had placed the switch more than a yard away from the door, and at a peculiar height. It was always a bit of a search.

The cafeteria light was easier to find. Once, Aksyonov, restless in the mid-die of the night, had walked into the darkened cafeteria, lipped on the light, and startled a group of fifteen or so engineers, all young, huddled around a single candle at a corner table. They looked stricken. A dope orgy, was Aksyonov's first thought. Thrilled and mortified, he fumbled an apology, turned the light back off, and left, never to raise the subject with anyone. It was none of his business. He never asked Tolubko what it was that she whisked off the table, and hid in her lap. It had looked, fleetingly, like a photograph.

Aksyonov did not encourage his colleagues to share the details of their personal lives. Only the details of the projects they were working on. And

they did that, he was sure.

Pretty sure.

Where was that damn light? His fingernails raked the plaster.

A space program as jihad. Imagine.

When they pray to the Chief, does he answer? He answered Novikov.

"Novikov," Aksyonov muttered. Old men were allowed to talk to themselves, weren't they? "I put the Chief in Novikov's head! Just to calm him down, make his last moments less horrible. If anyone helped him, it was not

the Chief. It was I. I, Aksyonov."

His hands slid all over the wall. This was embarrassing. Would be have to call someone, to cry out, Tolubko, please come over here, turn on my light for me? Shed think it a ruse, a ploy to entice her into bed. He laughed, then began to cry. He would never find the light. He was an old, old man, and there was no light. He leaned against the wall and slid down. He sat on the floor, sobbing in the darkness.

Stop it, Aksyonov. Stop it.

He closed his eyes, wrapped his arms around himself, clutched himself. He felt the trembling worsen. He bit his lip, fought a scream.

He was not alone in the room.

This was helpful, a fact to hold. The trembling in his arms gradually eased, and he relaxed his grip. His upper arms and his fingers were sore. Stiff tomorrow. He breathed in through his nose, out through his mouth, as his mother had taught him long ago. He did not open his eyes, but he knew that if he did.

He knew.

"Ah, Chief," Aksyonov said. "Lurk around here all you wish. I will never worship you. I know you too well, and I love you too much."

worship you. I know you too well, and I love you too much."

He woke up, sitting against the wall. He ached everywhere. The lights were on, and it was night outside. Beside him was the telephone table.

Good; it was sturdy enough. He hauled himself up, holding on, groaning only a little. He stood, rubbed his arms and legs, wondered why on earth he had fallen asleep in such a position. He answered himself, I am an old man, and then sought other problems. With some trouble and trembling he unbuttoned his shirt, absently switched on the drafting-table lamp. He looked down at his designs and was immediately engrossed, lost in his work even as he sank into the creaking chair.

And if while working he sometimes vocalized his thoughts, as if comparing notes, airing ideas—yes, even arguing—with an old friend, well, what of it? He was no cultist, no kneeling Kazakh. He was an engineer.

"Here's the problem, Chief," Aksyonov murmured, "Here, this is the best design for the solar arrays, in terms of fuel efficiency, Mounted like so, on the service module. So far, so good. But there are other considerations, For

Aksyonov's papers slid one over the other. His chair creaked. Tight-lipped, with ruler and pen, he drew a true line. He laid his plans all through the night, until dawn, O

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TRANSCENDENCE

THE TELLING by Ursula K. Le Guin Harcourt Brace, \$24.00 ISBN: 0151005672

SOULSAVER
by James Stevens-Arce
Harcourt Brace, \$24.00 ISBN: 0151004722

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Tor, \$29.95 ISBN: 0312878214

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onsistency is the hobgoblin of litthe minds, and while I may have been bemoaning the commercial shotgun marriage between two such literarily dichotomous modes as science fiction (the literature of the presently non-existent possible) and fantasy (the literature of the forthrightly impossible) under the "SF" marketing label, recent readings have inflicted me with the notion that perhaps there is an esthetic commonality between them.

But not just a commonality between science fiction and fantasy, but a commonality among science fiction, fantasy, a certain species of speculative science, Buddhism, evangelical Christianity, Sufism, Hassidism, the Beat Movement, and indeed its ancestor, American literary transcendentalism, one of whose progenitors, Ralph Waldo Emerson, was the author of the very epigram with which this essay begins.

And transcendentalism is the commonality in question.

Both science fiction and fantasy are literatures whose very existence depends upon literary elements that transcend the consensus reality of their readerships.

Fantasy is by definition literature containing an element the readers thereof know is impossible, a literary transcendence of the consensus reality for the duration of the tale as

a literary game. Unfortunately not all readers always realize that this is just a literary game, since not all readers, indeed these days perhaps all too few readers, have a firm grasp on just what consensus reality (AKA the presently known physical laws the universe) is, and thus we have vampire cults, satanic cults, witchery covens, and other such beliefs spawned by the confusion of fantasy with a "hister reality."

Including, atheists would contend, the world's major established religions, at least in the west, such as Judaism, Christianity, and Islam, Indeed, sincere believers in each of these western religions would contend that each of the others contain elements of fantasy, which is to say elements which violate consensus reality as they see it: Jews and Moslems, say, taking such a skeptical view of transubstantiation, Christians viewing with a skeptical eye the proposition that Allah dictated the Koran to Mohammed verhatim.

Am I presuming to say here that one person's religion is another person's fantasy? Well, yes I am, since a belief in a deity, or supernatural powers, or a higher reality that transcends the laws of mass and energy is as good a definition of religion as it is a premise of fantasy.

Ah, but the sincere Jew or Muslim or Christian might contend, what is

the true nature of reality?

And that is a question that by definition cannot be addressed by fantasy, which is the literature of the impossible. That is a question that by definition can only be explored by a literature of the possible.

Science fiction is a literature of the possible.

But of course it is far from the only one.

Historical fiction is certainly a literature of the possible, since it is a literature dealing with events that have actually occurred in the past. Contemporary mimetic fiction is a literature of the possible, since it attempts to describe events taking place in the consensus reality of the here and now

Arguably, and the practitioners thereof certainly would, fiction written from a firm position of religious belief is also a literature of the possible, since from their point of view, the reality they depict is not only possible but the sole divinely revealed truth.

But science fiction is the only literature of the possible that deals with non-existent artifacts, states of being, and events that could be possible in a future or an alternate present operating under the same physical laws as the consensus reality of the here and now.

Of course it is. By definition.

Since that is the only definition of science fiction that is literarily or critically useful.

That is the theoretical metaphysics of it, and on this level, science fiction and fantasy are very different, indeed perhaps antithetical. But on an esthetic level, on the level of what is delivered to the consciousness of the reader when either one truly succeeds, things get more complicated, more ambiguous.

Compare, for example, The Telling by Ursula K. Le Guin, and Soulsaver by James Stevens-Arce. The former is clearly science fiction, and the latter is clearly revealed as fantasy at its denouement, at least in the eyes of most people, and yet there is something common at their hearts.

In a word, transcendence,

It is hard to imagine two more different books by two more different writers.

Soulsaver is Stevens-Arce's first novel, and Le Guin has been publishing for over three decades. The Telling is set once upon a time on the planet Aka far, far away in Le Guin's "Hainish universe," which is to say it is part of a long, long series, involving a star-spanning civilization with a long, long history. Soulsaver is set in a near-future Puerto Rico, specifically, indeed, very specifically, San Juan and environs. Stevens-Arce's novel is quite funny. a satire in a way, at least for most of its length, and its surprising denouement makes a second novel set in this "universe" a mercifully dubious proposition. Le Guin is as earnest in The Telling as elsewhere in this cycle.

Soulsaver is narrated in the amusing, alternately naive and sophisticated, first person voice of Juan Bautista Lorca, a young freezer van driver for something called the Suicide Prevention Corps of America-a misnomer, since what the SPCA actually does is resurrect people who have already done the fatal deed.

In this future America, the God Squad, as it were, has quite taken over. The Constitution has been altered, televangelism, government, and show biz have been seamlessly combined, and even rock and roll has become the music of the angels. Suiciders are resurrected very much against their will, all the more so since the process is a very painful one that mitigates against second tries, and the rationale is entirely religious and quite narrowly sectarian, namely the fundamentalist Christian conviction that all those who top themselves go to hell.

The Telling is written in Le Guin's characteristic third person viewpoint and mostly at something of a auctorial remove from immersion in the consciousness of the person in question, Sutty; Earthwoman, cultural anthropologist of a sort, educated by the superior culture of the Hainish Ekumen, assigned to the Hainish mission on Aka, where she will be sent out into the deep boonies thereof to learn more about the ancient Akan culture, now seemingly on the verge of extinction, due to the fairly recent forcible remolding of the planet's civilization by Terran missionaries and the local authorities into a grim and not at all funny parody of American corporate capitalism.

Two very different novels indeed, in terms of tone, setting, intent,

style, viewpoint, and yet. ...
And yet both of them are more or
less packaged and published as "SF."
And indeed, both of them are literarily qualified to be called science
fiction, at least until the last fifth or
so of Soulsaver, where it becomes
rather arguable.

It goes deeper than that.

The central subject of both novels is religion, though the religions in question are of quite different kinds, the handling of the thematic material utterly different, and the authors' philosophical stances seemingly quite dichotomous.

The Earth of The Telling from which Sutty comes has just emerged from a period of religious fascism, thanks to the subtle or not so subtle machinations of the Hainish cultural nannies who do not seem to have heard of Star Trek's Prime Directive

in their neck of the galactic woods or perhaps don't give a damn if they have. Though strangely enough, they do seem almost excessively punctilious about cultural non-interference on Aka when Sutty gets there, even though the thoroughly nasty society they confront has been turned into what it is largely by meddlers from Earth.

The theocratic tyranny from which Earth has recently been liberated is not that dissimilar to the sort of thing of which Soulsaver is a parody, though Le Guin's version is a relentless and rather schematically righteous political straw man, described in well-rendered physical and geographical detail, but, paradoxically enough, much less convincing on an experiential level than Stevens-Arce's comic inferno version. Perhaps this is because he presents it with a kind of affection through the idealistic yet occasionally mordant, naive yet somehow hip, viewpoint of Juan, a sincere true believer who somehow manages not to be a prig about it.

When the scene of *The Telling* shifts to Aka, where most of the story takes place, Le Guin's rendering of cultural detail becomes both better and worse.

The corporate capitalist fascism that has been imposed on the planet by its "reformers" in place of the banned native culture is utterly schematic to the point of being rendered virtually generic, stripped of even the slightest redeeming elements, and so unbelievable on a political and economic level that it is all too obvious that Le Guin has constructed it as an example of everything she hates.

Fair enough, if you can pull it off, but to pull it off you have to either go the route of Pohl and Kornbluth in *The Space Merchants* or the way of Stevens-Are in *Soulsaver* and go for a piss-take and demonstrate the

devils in the details. Or construct truly hellish but satanically subtle nightmares like William Burroughs or George Orwell or the Anthony Burgess of A Clockwork Orange.

Le Guin dossn't do any of this herstead she once more falls into hercharacteristic major flaw as a political novelist, demonstrated in The Dispossessed and even more so in Always Coming Home. Namely, rendering the culture she wants to hold up as a negative example generically, thinly, superficially, in stark and crude black and white newspaper cartoon fashion, while doing a much better, much more colorful job of rendering the society she wants the reader to love.

Well, maybe this does work on some level with some readers. You pays your money, and you takes your choice, and for mine, this is either an intellectually dishonest cheap trick on the part of the writer, or, more likely, an unexamined result of the writer's differing degrees of emotional involvement with the

cultures in question.

And to be fair about it, it certainly can be said that Le Guin's deeper and more subtle attention to that which she would extol than to that which she would condemn is no doubt at least healthier than the reverse would be.

Be that as it may or may not, Le Guin is characteristically at her best when she is immersing her viewpoint characters in cultures she obviously would not mind living in herself, for this is where she shines as a prose stylist, as a lovingly caring "world-builder" in the best traditional science fictional sense, and, well, as a kind of mystic.

For despite having written great reams of political science fiction and much feminist science fiction and no few things that are both, for my money Le Guin the political pamphleteer is both unconvincing on a political level and not doing her best work on a literary level therein, perhaps because the pamphleteering is so naked. She is at her best, perhaps because closest to the true core of her being, as a secular humanist mystic

Oh, yes, it is possible, as Ursula K. Le Guin demonstrates in The Telling perhaps better than she has anywhere else, which is what makes the novel succeed on an esthetic and literary level whatever its failings

as political fiction.

"The Telling" of the title was the "religion" and "cutture" and "literature" of millennial Aka, and, as Sutty finds out as she penetrates deeper and deeper into the back country, deeper and deeper into its inner meanings on her vision quest, still is, beneath the surface overlay imposed from outside.

"The Telling" is not a religion in the conventional western sense, rather an immense body of tales, parables, aphorisms, poetry, and so forth, which mutate with the tellers. No gods to worship or devils to fear save those of the inner being. No "higher reality" outside of space and time, only the multiplex reality in which consciousness thind sixelf

If this sound a lot like Taoism or Buddhism stripped of the accretion disk of mumbo-jumbo it has accumulated since Buddha had his satori under the Bo tree, well, it is, and Le Guin has fathomed these waters before, if never with quite so much simple clarity.

This is, of course, also a kind of pantheism, in which transcendence resides within the world and not beyond or above it, in which it is to be sought within the dance of maya's veils, since the dance is all there is.

If this also sounds a bit like the literary and indeed mystical stance of SF in the real world (as the title of a collection of these very essays

had it in another context), you are beginning to get the point.

There is a strong stream of science fiction that both seeks to explore the possibilities of transcendence within the known physical parameters of a universe without any deity but chaos at the controls, and more, upon occasion much more, which seeks to evoke transcendent experiences-satoris as the Buddhists would have it, the sense of wonder as science fiction fans would have it-within the consciousness of its readers.

Through the telling of tales. Like "The Telling" of such tales that is the core of the culture and consciousness of the people of Aka. Like The Telling itself, within which Ursula Le Guin seeks to do just that

by the very same means.

This, I would contend, is the essence of science fictional transcendentalism. Take the consensus reality as informed readers know it, the physical laws determining the behavior of mass and energy in the universe in which they find themselves, and, via literary art and speculative transformation, create within the beings of those readers a state of consciousness, however fleeting or not, of transcending the previously assumed parameters thereof, not outside the dance of matter and energy, but within it.

But is this something only science fiction can do?

Maybe not.

A tale told to me by Philip K. Dick about a little correspondence with Ursula Le Guin herself:

Ursula had opined in print that Phil's dialogs in a novel between "Phil Dick" and "Horselover Fat." both of whom were overt aspect of himself, were perhaps indications that he had gone off the schizoid deep end.

Phil wrote her a letter. And in it he said:

"You forget, Ursula, that it's a novel."

Meaning, for current purposes, that if a work of fiction creates such a satoric moment in the consciousness of a reader, then, since what we are talking about is, after all, a literary effect and not an operating manual for the universe, science fiction or fantasy, perhaps it amounts to the same thing.

Or not.

I confess to a certain uncertainty

In Cat's Cradle, Kurt Vonnegut, Jr., has his prophet Bokonon declare: "Believe in the foma that make you strong, and brave, and happy." Elsewhere in the same novel "foma" are defined as "useful lies." And it was also Vonnegut who uttered the truism that "all fiction is lies."

Only some are more useful than others?

Which, by a somewhat roundabout path, brings us back to Soulsaver, in which James Stevens-Arce does two rather amazing things, one setting up the other, creating a final effect that I am loath to fully describe for fear of destroying it for potential readers, but which raises a question about the ambiguous relation between transcendental science fiction and transcendental fantasy I am equally loath to ignore.

So, to tread carefully, let me ask

you a question, dear reader: Is it possible to write science fic-

tion from a position of Christian or Jewish or Muslim conviction and dealing with the reality of a universe in which such beliefs are true, or must such fiction be considered fantasy by definition?

Okay, so it is a trick question, for we are dealing with a certain species of Heisenbergian uncertainty here. For the intent of the author to write either science fiction or fantasy depends upon whether or not he or she believes that the religious conviction in question must be incorporated into any description of reality, in which case the author is writing science fiction, or whether it is just a literary game, in which case the auctorial intent is to write fantasy.

And of course, the same applies to the readers. What a believer would take as science fiction, a non-believer would take as fantasy, no matter the intent of the writer.

the intent of the write

What is so intriguing about Soulsaver, aside from the wonderful speculative takes and piss-takes on a future Puerto Rico at once strangely exotic and quintessentially American, is that it's very difficult to diseern Stevens-Arce's true intent in this regard.

The televangelized holy rolling America is savegely satirized, but the sincere belief of Juan and others is not, is treated sympathetically, and with depth, which is what makes this novel much more than yet another iteration of an oft-told

comic cautionary tale.

And without giving too much away, I can say that Juan's faith is not at all deconstructed at the denouement, which, from my point of view, transforms what has been science fiction into fantasy, but which, from a certain other point of view, transcendence not merely from within a work of science fiction, but from within a work of science fiction, but from within a work of science fiction.

While satire has hardly been Sir Arthur C. Clarke's main forte during his long career, the dialectic between the immutable laws of mass and energy and transcendence, between the 'hard science fiction' for which he is most famous and the mystical impulse, between the cold equations and the transcendence of them in one way or another paradoxically within them, certainly has.

Tor and Orbit have now published The Collected Stories in a volume of nearly a thousand pages, and while Clarke is perhaps better known for his novels, the range and balance of the stories certainly does demonstrate this dialectic in his work throughout his career as well as they do, a dialectic that is central to the modern science fiction whose evolution Clarke himself has done so much to mold.

One of the peculiarities of the general culture's perception of science fiction is that the three "science fiction writers" whose names are most generally known by people who don't read the stuff are Robert A. Heinlein, Isaac Asimov, and Arthur C. Clarke.

Peculiar because Heinlein was made famous by the adoption of Stranger in a Strange Land as a countercultural icon and most notoriously by Charles Manson, and Asimov became a household name via his voluminous production of nonfiction, read by ten times as many people as ever read his science fiction titles, which, in terms of sales and wordage, make up only a minor portion of his oeuvre.

Peculiar because Clarke became well-known as a science fiction writer because of his many publications of science fiction stories in Playboy, a non-SF magazine which reached a mass audience, and then became world famous as one via a film he wrote with Stanley Kubrick, loosely based on his story "The Sential," 2001.4.8 Papec Odyssen.

Peculiar because, I would contend, the three most famous science fiction writers became famous as science fiction writers through things other than their actual literary production thereof, and of the three, only Clarke's fiction is really esthetically and thematically central to the evolution of what science fiction has become.

Clarke is generally considered an archetypal "hard science fiction" writer, perhaps the archetypal hard science fiction writer, and for all I know, he may believe it himself.

Certainly by sheer volume, the bulk of the wordage in The Collected Stories is the sort of thing John W. Campbell, Jr. would have had no qualms about publishing in Astounding and did, and certainly many of the novels are also nutsand-bolts stuff, with a clunky prose style to match.

But volume is not a reliable measure of literary significance, and even early on, the Clarke of Childhood's End and Against the Fall of Night was a far superior writer on a thematic and prose level than the Clarke of, say, A Prelude to Space or The Sands of Mars, written more or less during the same epoch.

Thus, from almost the very beginning there were two Clarkes: the nuts-and-bolts hard SF writer who for a time was Chairman of the British Interplanetary Society, has laid claim to being the conceptual creator of the communications satellite, and who is perhaps the bestknown and arguably best popularizer of science and technological speculator aside from Asimov, and Clarke the metaphysical speculator, the scientific transcendentalist, if vou will. Or even if you won't.

Perhaps Clarke himself would argue that the dichotomy is illusory; if so he would get no philosophical argument back from me, though I would still contend that on a sheer literary level he is much better when he is pondering the cosmic depths, probably because such material actually induces a heightened state of one's consciousness when one is pondering it, which becomes reflected in the work. Or perhaps one must exercise a higher level of literary artistry to render such stuff. I would expect probably both.

Be all that as it may, what makes Clarke's best work so central to the literary evolution of science fiction is not just his evocation, or one might even say conjuration, of transcendence from within the known physical laws of the universe, but the utter centrality of space to that scientific transcendentalism.

For if there is a single mystical and thematic essence of science fiction, this is certainly it. One might even deem it a kind of religion.

Breaking the bonds of gravity. Transcending the finite limits of a single planet to emerge into the infinity of the universe beyond. Transcending the limits of historical time, measured in centuries or millennia at best, to attain a destiny in cosmic time measurable in millions or even billions of years. Encountering beings out there whose technology and culture and consciousness is millions of years of evolution in advance of our own. Evolving into such beings ourselves.

This is the mystical long distance call of space. Not travel to other planets in order to encounter outré ecologies or weird monsters or even bizarre cultures. Not orbital mechanics or astrophysics or rocketry or libertarian wet-dreams in the asteroid belt.

Transcendence.

Of the closed system of a single planet into the open system of an infinite universe. Of historical time into universal time. Of mortality into immortality, at least on a species level. Of the limits of our present consciousness itself.

Across the Sea of Stars to Childhood's End, as it were.

Not in some heaven or fantasy realm but in the real world. In the universe of mass and energy in which we find ourselves.

Sir Arthur's most often-quoted aphorism is that any sufficiently advanced technology would appear to be magic. Maybe, maybe not. Maybe any really advanced technology would be self-explanatory even to dim creatures such as ourselves.

dim creatures such as ourselves. But there is a flip side to this

aphorism.

Any sufficiently advanced technology—and perhaps we have even already advanced to that level ourselves—can bring magic back into the universe of mass and energy without violation of its laws.

Or if we haven't quite achieved that yet technologically, we can do it on a literary level. With science fiction. Of the sort that Arthur C. Clarke has written at the top of his form.

Scientific transcendentalism.

In the west, science and the transcendental vision quest, science and religion, have been considered anti-thetical at least since the beginning of the Renaissance or perhaps even since the Christianization of the Roman Empire and the supercession of the Classical World by the so-called "Dark Ages," dark because the theocratic rule of the Catholic Church sought to suppress all knowledge that contradicted Biblical revelation.

But this was an historical artifact. The result of a political policy, a foolish mistake on the part of the Church whose ill effects western civilization has still not entirely seen the end of.

For upon reflection, after all, there is no essential reason why the objective quest for scientific knowledge of the laws of the physical universe and the subjective quest for transcendental experience and vision need be antithetical.

Only the Church's absurd insistence that the history of the universe and the immutable physical laws thereof were fully elucidated by divine revelation to nomadic tribesmen a millennium and more before the invention of the telescope and the microscope, or even chemistry and physics, and its determination to use its political power to enforce it for political purposes, created this entirely artificial breach.

Islam, and to some extent Judaism before it, made no such insistence, the main reason perhaps why the Islamic world remained scientifically in advance of Christianized Europe until the Renaissance.

What, you may ask, does this have to do with science fiction? With the transcendental meaning of space therein? With the scientific transcendentalism of Arthur C. Clarke?

If you can find it on DVD or videa and have a couple of hours to kill, watch Peter Hyams' 2010, a rather dim sequel to Kubrick's 2001, in which a mission is sent to Jupiter to examine the ship left there at the end of the previous film, encounters the virtual specter of David Bowman, the transformed "starchild" at the end of the Kubrick movie, through whom they have a tenuous and didactic contact with a superior galactic civilization, which then turns Jupiter into a second sun. The that's basically all, folks.

Then read Clarke's novelization of the film, 2010: Odyssey Theo and see how he turns the skein of events of this thin hard SF plot into a numnous and luminous meditation on what a truly transcendent civilization might be like on the level of consciousness and not merely of artifact.

This is, in a sense, a textbook demonstration of how science fiction at its best can summon up transcendental visions out of the nuts and bolts of the laws of mass and energy it is also a very clear demonstration of the metaphysical centrality of space in this process, science fiction's greatest and most dominant metaphor for the infinite and the transcendent, made all the more powerful because it is both metaphor powerful because it is both metaphor

and reality.

And this, in turn, may be why sci-

ence fiction has generated a subculture of fandow whose hard one worships the stuff on an extraliterary level, why it has created at least one religion of significance in the Church of Scientology and any number of more minor mystical cults, and why western culture has marginalized it.

Science fiction can deliver the transcendence that western religions promise in the hereafter as a reward for good behavior and do it experientially in the here and now. And persuade its readers that it is at least possible within the universe they live in rather than only as pie in the sky in the great bye and bye, that it is attainable through possible technology.

This is a concept that is very dangerous indeed to the social, psychological, and political control mechanisms of a civilization based on the concept of post-mortem transcendence as a reward for following the God-given rules. Hence one that needs to be pushed to the opp cult fringes and intellectually marginalized lest it give the lunatics the idea that there really isn't any reason not to take over the asylum.

Of late, though, there has been a paradigm shift within the literature away from space as the dominant venue of transcendence within the universe of mass and energy, and toward "virtual reality," "nanotechology," and "artificial intelligence," as the main metaphors for the up and out.

I use quotation marks to remind you that none of these three technologies actually exist, all three of them being science fictional pseudotechnologies at least for now, and, I suspect, for a long time to come.

"Virtual reality" is merely the extension of Gibsonian cyberspace into a kind of interactive television; sight and sound only, now, and as far as the eye can see. I would contend. because these are the senses that can be digitally emulated, whereas smell, taste, and feel, let alone sexual excitation and orgasm, are relentlessly analog.

"Nanotechnology" may have initially been the notion of K. Eric Drexler, a speculative scientist of sorts, but what the concept has become today owes much more to science fiction like Greg Bear's Blood Music. Molecular level machines of any useful sort are probably decades away, and "gray goo," zillions of "assemblers" working together to transform shit into shinola coordinates by a tomic-level software is probably beyond the scale limits set by quantum mechanics.

"Artificial Intelligence" may exist to the extent of expert systems emulations of human knowledge and perhaps even decision-making processes. Someday, perhaps even soon, such software may be able to pass a Turing test, but this is a long, ong way from artificial consciousness, for being to arise or be stored within the bits and the bytes, which is the confusion being promulgated by this sort of stuff.

This sort of stuff?

kind of science fiction.

What sort of stuff?
Well, for a current textbook exemplar, The Spike, by Damien Broderick; a curious, symptomatic, occasionally fascinating, sometimes boring and generally disturbing "non-fiction" book of science fictional speculation that seems to ignore or

Broderick is a well-known writer of science fiction, and the central McGuffin of The Spike is taken, with generous acknowledgment, from another well-known writer of science fiction, Vernor Vinge, who coined the term and pioneered the concept of "the Spike," and, on the evidence of this book at least, would

seem to have become the central

forget that "this sort of stuff" is a

prophet of a little cult that has formed around it.

The basic thesis is that sometime within the next half century or so. computer technology, nanotechnology, the full elucidation of the human genome, virtual reality technology, and wizard software will rather suddenly converge to produce an asymptotic upward surge in technological evolution, a spike-shaped curve on the graph of technological progress against time approaching infinity as a limit, beyond which the future is inherently unpredictable to unevolved consciousnesses like ourselves on the wrong side of the divide

Of course, Broderick being a science fiction writer, ditto Vinge whom he relies upon extensively, as well as other such well-known inspirations as Gregory Benford and Bruce Sterling, most of the book is spent trying

to predict it anyway. Immortality will be achieved by

downloading our minds into computers and/or Artificial Intelligences created therein will outstrip us. Humanity will become obsolete, probably extinct, superseded by these software intelligences immortalized in silicon, and able to bootstrap their own puissance to ever higher levels

Nanotechnology will assemble whatever the heart desires from whatever matter is lying around at zero cost. Intelligence will colonize the galaxy, then the universe, and will find ways of transcending even

its heat-death or Big Crunch. Neat stuff for the devotee of science fiction. Inspiration for any number

of science fiction novels and stories. Most of which, of course, have al-

ready been written.

I say "of course" because regular readers of this magazine are likely to know this. They will also know that when Gregory Benford speaks as a science fiction writer he is not really speaking as a prominent astrophysicist. They will know that Vernor Vinge has stronger credentials as a science fiction writer than as a scientist. For that matter, they will know that Damien Broderick is primarily a science fiction writer himself

What readers of The Spike who do not know any or most of the above will make of the book is difficult for

one who does to fathom. I would suspect that many will

find it fascinating, a smaller number will find it inspiring, and some will toss it aside as reductionist nerdish babble. Few. I would suspect, will be drawn by The Spike to explore the literary transcendentalism of science fiction, because, although Broderick is a science fiction writer, the majority of the people he quotes are science fiction writers. and most of the concepts in the book derive from previously published science fiction, this is not at all made clear. Indeed, it sometimes seems to be deliberately obfuscated.

I myself began it with high expectations, for I must admit that I am a sucker for this kind of speculative science, this science fiction without the fiction, but unfortunately I felt let down about a third of the way in. bored along about the middle, and concerned by the time I was finished,

How can I put this gently? I guess I can't.

The Spike struck me as, well, fannish

What do I mean by "fannish"? I mean the opposite of the sort of

serious cutting-edge scientific speculation that can serve as inspiration for science fiction that might explore these concepts' impact on human culture and consciousness, on the evolution of transhuman consciousness, on the place of being in the universe of mass and energy itself.

I mean taking concepts long dealt with in decades of science fiction and presenting them to a naïve readership as if they sprang from current cutting edge science on the one hand and discussing them in the manner of one of the endless science fiction convention panels that have done them to death already on the other.

I also mean dealing with their political, economic, and social ramifications in a blinkered manner all too reminiscent of the intellectually and politically naïve ideological libertarianism prevalent in science fictional circles. Going on, for example, for pages and pages and pages of speculation on how market forces would structure an economic system of costless abundance created by nanotechnology without for a moment pondering that such a technology might render capitalism itself obsolete, with scarcely a mention of socialism, let alone (horrors!) the obvious solution to such a happy nonproblem, namely communism,

Worse still, maybe much worse, Broderick seems to be both describing the existence of the aforementioned Spike cult, and doing a bit of proselytizing for it, while enlisting Gregory Benford and Bruce Sterling, among others, whether they know it or not.

The doctrine of this movement would seem to be that the sudden supercession of humanity by "post-humanity" is inevitable, that it will occur within the lifetimes of many now living, that beyond this singularity lies transcendent consciousness and immortality, so the thing to do is accept it, go with the flow, and do what you can to get in on it.

How?

Well, there seem to be two schools of thought, though they are not entirely separate.

One notion is to have yourself frozen upon death or shortly beforehand; your whole body if you can afford it, only your head if you can't, to be revived and immortalized in a cloned body in the new era on the other side of the Spike.

Mea culpa, I suppose, since I may have started this one myself, in *Bug Jack Barron*, written in 1967, though there it was used as a political and economic scam.

The other, more radical, school, declares that it is the flesh itself that is becoming obsolete, and the way to achieve transcendent immortal consciousness, whether you must pass through a period as a frozen head or not, is to have yourself uploaded into computer hardware, not only much hardier than gooey protoplasm, but capable of storing multiple copies, which, moreover, can be rewritten and tweaked upward and oward

You.1, you.2, you.2.3, you for Mac, you for Windows, and of course, you for Linux, if you really want to get nerdish about it, which those who would go this route probably will.

You, who?

fou, who'r God, if there is one, help me, I God, if there is one too, which is one of the central questions of Deus X (1993), though therein I adopted constrasting Catholic and Rastafarian viewpoints, thus at least partially dodging the ultimate reality that all this ignores, annely that 'artificial intelligence' is not consciousness, artificial or otherwise, and therefore an uploaded copy of the contents of your brain, even assuming such a thing is doable, cannot be

Think about it. Observe yourself thinking about it. Have a few drinks and think about it. Smoke a joint and think about it. Drop some LSD and think about it. Think about it with a hard-on. Think about it with a hangover.

Consciousness is not simply a program running in the meatware computer of the brain. Consciousness arises in a biochemical matrix influenced by the endocrine system, sensory input, sex, drugs, and rock and roll, all of which and much more, operate via organs other than the brain.

Moment-to-moment consciousness also operates at too great a speed to be anything short of an electronic-level phenomenon, let alone a program running on a clunky difference engine of simple neural connection alterations.

If one must use a reductionist computer metaphor, think of longterm memory as stored on a hard disk, and consciousness as what's up and running at a given moment in

much faster RAM.

pattern running in RAM if the power suddenly goes before it's saved to disk? Anyone who's had their system crash in the process writing their deathless prose before it could be saved to disk knows that, alas, it isn't deathless after all, it's gone forever.

What happens to the electronic

What happens to consciousness if you do likewise with the meatware it's running on, say by slicing off your head and storing in the freezer?

Right.

Don't try this at home. The reason I go into this briefly here-having gone into it in detail in a piece in Analog called "Psychesomics" two decades and more agois that several prominent science fiction writers are planning to do this. And The Spike promotes the notion. as does the movement it describes.

The wife of an artist who shall mercifully be nameless once bemoaned to me that "sometimes I think my husband would rather be

a brain in a bottle."

This, alas, is a personality type all-too-prevalent among the science fiction readership, the sort of person who would seek transcendence not as a spiritual being within the real world of mass and energy but as a disembodied electronic clone in the virtual realm of the transhuman cvbersphere on the other side of the Spike.

"The road of excess leads to the Palace of Wisdom," declared the transcendentalist William Blake.

And indeed it can.

But take care, science fiction fans. Certain excessively obsessive roads can also lead to a clone of the Church of Scientology.

A word to the wise:

A "spike" is also a delivery system for heroin O



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- 24-28-Int'l. Space Development Corrf., Box 5178, Albuquerque NM 87185, (505) 830-6747, Hilton. Pro-space.
- 25–27 -- MarCon, Box 141414, Columbus OH 43214. (614) 475-8181. Hyatt. E. Mitchell, Hogan, Jordan/Rigney.
- 25-27-LibertyCon, Box 695, Hixson TN 37343. (423) 894-6110. Ramada, E. Ridge (Chattanooga) TN. Drake.
- 25-27-Ossis, Box 940992, Orlando FL 32794. (407) 263-5822. Radisson. Jack McDevitt, Targete, Tom Smith.
- 25-27-ConQuest, Box 36212, Kansas City MO 64171. (913) 768-0779. Park Place. S. Pagel, Hodgson, Tener.
- 25-27 MediaWestCon, 200 E. Thomas, E. Lansing MI 48906. (517) 372-0738. Holiday Inn So. Media fanzines.
- 25-27-Anime North, Box 24090, Toronto ON M6H 4H6. www.animenorth.com. Airport Marriott. Dunn, D. Smith.
- 25-27-SecCond, 19 Hill Ct. Rd., Cheltenham GL52 3JJ, UK. www.seccon.org.uk/. DeVere Hotel, Swindon UK.
- 25-27-Eclectic, 47 Bennets Ct., Bristol BS37 4XH, UK. www.eclectic21.co.uk. Holiday Inn, Leicester.
- 25-28-BaltiCon, Box 686, Baltimore MD 21203. (410) 563-2737. Omni. H. Clement, Halla Fleischer, D. Kyle.
- 25-28—BayCon, Box 610427, San Jose CA 95161. (408) 450-1788. Doubletree. R. Rucker, B. Hartmann, Brite. 25-28—WisCon, Box 1624, Medison WI 53701. (608) 233-8850. Concourse. Kress, Vonarburg. Feminism & SF.
- 25-28-World Horror Con. Box 5171, Bellingham WA 98227, (360) 734-0919, SeaTac Marrott, Laymon.
- 25–28—CostumeCon, Box 20001, Calgary AB T2P 4H3, (403) 242-1807, Westin, Masqueraders' big annual do.
- 26-27-Women of Voyager, 6270 Hollow Ln., Medina OH 44256. (330) 764-7967. Renaissance, Cleveland OH.
- 26-27-VulKon, Box 821673, So. Florida FL 33082. (954) 441-8735. Atlanta GA. J. Marsters. Commercial Trek.

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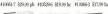
























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